BEHAVIORISM

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EDITED BY
WILLIAM P. KING

NASHVILLE, TENN.
COKESBURY PRESS
1930

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Printed in the United States of America

FOREWORD

We have entirely failed to discern the signs of the times if there is not a very general desire for a discussion of Behaviorism, such as is set forth in this volume. Surprise has been expressed that the Editor should have succeeded in getting together in a Symposium so many distinguished authorities.

The writers are given a free hand, and there are some divergences of views.

The position, however, in common is against materialistic Behaviorism.

At the close of the volume will be found a general Bibliography, and also the Bibliography of the several authors who have participated in the discussion in this Symposium.

Valuable suggestions by several of the contributors have been used. Special acknowledgment is made to Dr. Edgar S. Brightman for the arrangement of the chapters, which is doubtless as logical as could be expected in a symposium of this kind. I am also indebted to Dr. Josiah Morse for his ready consent to change from a chapter discussion and write the Introduction.

Gratitude is due Mr. Curtis B. Haley for his indispensable service in criticizing the manuscript and reading the final proofs.

We wish to express our hearty gratitude to the several publishers who readily gave permission for the use of quotations from their publications. Readers who desire to pursue the subject would do well to secure several of these volumes. W. P. K.

CONTENTS

FOREWORD 5
By William P. King, D.D., Book Editor and Editor of the *Quarterly Review*, Methodist Episcopal Church, South

INTRODUCTION 11
By Josiah Morse, Ph.D., University of South Carolina, Columbia

PART I

THE GENERAL PRINCIPLES OF BEHAVIORISM

I. THE PSYCHOLOGY THEY TEACH IN NEW YORK. 31
By William McDougall, D.Sc., Duke University, Durham, N. C.

II. BEHAVIORISM AND BEHAVIOR 63
By Charles C. Josey, Ph.D., University of South Dakota, Vermillion

III. METHOD IN PSYCHOLOGY AND BEHAVIORISM .. 78
By A. W. Centner, Ph.D. (Louvain), Pontifical College Josephinum, Columbus, Ohio

IV. METHODOLOGY AND PSYCHOLOGY 94
By Herbert C. Sanborn, Ph.D., Vanderbilt University, Nashville, Tenn.

V. BEHAVIORISM—A BATTLE LINE 124
By William P. King, D.D.

30-
23

PART II

BEHAVIORISM AND VALUE

VI. BEHAVIORISM—A TECHNIQUE OF CONTROL, NOT A MEASURE OF VALUES.............. 149
By Winfred Ernest Garrison, Ph.D., University of Chicago

VII. BEHAVIORISM'S SILENCE AS TO HUMAN VALUES. 171
By Ross L. Finney, Ph.D., University of Minnesota, Minneapolis

VIII. THE USES AND LIMITATIONS OF BEHAVIORISM IN THE SOCIAL SCIENCES................ 187
By Charles A. Ellwood, Ph.D., LL.D., Duke University, Durham, N. C.

IX. BEHAVIORISM AND CHARACTER.............. 212
By James Seehorn Seneker, Southern Methodist University, Dallas, Tex.

X. CAN A BEHAVIORIST BE GOOD?.............. 242
By Joseph Herschel Coffin, Ph.D., Dean and Professor of Philosophy, Whittier College, Whittier, Calif.

XI. BEHAVIORISM AND THE ARTS................ 257
By Lynn Harold Hough, Th.D., Litt.D., D.D., American Presbyterian Church of the United Church of Canada, Montreal, Quebec

XII. BEHAVIORISM AND RELIGION................ 273
By Julius Mark, Rabbi of the Vine Street Temple Nashville, Tenn.

XIII. WHAT DOES BEHAVIORISM MEAN FOR RELIGION? 288
By Harris Franklin Rall, Ph.D., Garrett Biblical Institute, Evanston, Ill.

PART III

BEHAVIORISM AND METAPHYSICS

XIV. BEHAVIORISM AND EXPERIENCE 307
By Edgar Sheffield Brightman, Ph.D., Boston University, Newton Center, Mass.

XV. BEHAVIORISM AND PERSONALITY 331
By J. W. Langdale, D.D., Book Editor of the Methodist Episcopal Church, New York

XVI. HAVE SOULS GONE OUT OF FASHION? 344
By Rufus M. Jones, LL.D., Litt.D., Ph.D., Haverford College, Haverford, Pa

XVII. BEHAVIORISM AND FREEDOM 357
By Francis J. McConnell, LL.D., Bishop of Methodist Episcopal Church, New York

SELECTED BIBLIOGRAPHY 371

BOOKS BY CONTRIBUTORS TO THIS VOLUME 374

INTRODUCTION

BY JOSIAH MORSE

SCIENCES are the products of human minds, Scientists are human beings, subject to the same limitations and responsive to the same psycho-social forces as other human beings. It is necessary to emphasize these platitudes because in the minds of many science (often written with a capital S) has been elevated to the level of a cult and its votaries are regarded as belonging to a species of supermen who speak with almost supernatural authority. This is not to be interpreted as a disparagement of the sciences or scientists. The statement of the simple fact is in the best interest of both In other words, it is of no genuine service to scientists to ascribe to them powers which no human being possesses, or qualities to their work which they do not and cannot have. Scientists, like other human beings, are children of the age in which they live and reflect it in their viewpoints and conclusions. A fairly accurate history of any period could be written, based solely upon a study of the scientists—their interests and productions—of that period. The changes in manners, customs, laws, and even in fashions have hardly been more numerous or more rapid than the changes in scientific concepts, hypotheses, and inferences in recent years. Which is again no disparagement of science, but a simple fact, and one to its credit.

These trite observations are by way of explaining the vogue of Behaviorism in America. Engrossed as the nation is in the production and use of machines, it would have been surprising indeed if it did not reflect its absorbing machine-interest through pragmatism in philosophy and Behaviorism in psychology. As such, both movements are interesting and of value to the social psychologist. But that they express finality in either philosophy or psychology would be an absurd reflection, unless one believes that this machine age will endure forever. If, however, it will pass, as the pastoral and agricultural ages have passed before it, then it is reasonable to suppose that the machine-culture will pass with it. In the former ages men lived close to nature and observed its many and changing moods and phases. It seemed to them to be something alive and to have will and intelligence and purpose. God was not far off, and certainly not non-existent. Many walked and talked with him, or believed they did. But now the same type of men live in subways, office buildings, shops, and factories. They seldom see sky or grass. They hardly know where their food and clothing come from. Inventions have almost completely wrapped them in insulating tape, rendering them immune to the forces of nature. If they need anything, they do not have to pray for favorable weather or other blessings; they need only to turn on the steam, press a button, push a lever, or "step on the gas," and their wishes are fulfilled. Machine is a great and good god; praise be to Machine!

When young men coming out of such an environment enter the psychological or other scientific laboratories and deal with physical and chemical properties, with mice and guinea pigs and sense organs, muscles, and glands, all of which respond fairly uniformly to the stimuli applied, they quite naturally conclude that the entire universe can be comprehended within the stimulus-response formula, and that there is naught else besides. By the time they get their Ph.D.'s, they are mechanists and somatologists, now commonly known as Behaviorists. And they insist, repeating the dicta of their teachers, that science can deal only with data that can be objectively observed and measured. If the facts cannot be expressed in mathematical terms and formulas, they are not scientific facts, and the next step—the denial that they are facts at all—is an easy one.

They forget, or else they do not know, the distinction William James drew between "knowledge of" and "knowledge about"—the former being knowledge of psychological facts and the latter of physical facts. And, as James further pointed out, the former are the surer of the two, being more immediate and intimate.

Aldous Huxley elaborates the same thought in a recent article. "The only facts of which we have direct knowledge are psychological facts. The Nature of Things presents us with them. There is no getting around them, or behind them, or outside of them. They are there, given.

"One fact cannot be more of a fact than another. Our psychological experiences are all equally facts.

There is nothing to choose between them. . . . Science is no 'truer' than common sense, or lunacy, or art, or religion. It permits us to organize our experience profitably; but tells us nothing about the real nature of the world to which our experiences are supposed to refer. From the internal reality, by which I mean the totality of psychological experiences, it actually separates us. Art, for example, deals with many more aspects of this internal reality than does science, which confines itself deliberately and by convention to the study of one very limited class of experiences—the experiences of sense. To collect records of sense-experiences (particularly of those which lend themselves to description in terms of numbers), to generalize them, to draw inferences from them, to construct from them a logically harmonious scheme of description and explanation—this is the business of science. At the moment, it is worth remarking, there is no scheme that harmoniously reconciles all the facts even in the limited sphere of scientific investigation. What is sense in the subatomic universe is pure nonsense in the microscopical world. In other words, logic compels us to draw one set of inferences from certain sense experiences and another irreconcilable set of inferences from certain other sense experiences."[1] And Münsterberg years before remarked: "The scientist forgets that all this causal explanation has no meaning whatsoever, and his statements no truth, and his universe no reality, if he and we are not presupposing an idealistic belief in those absolute standards of eternal value by which we can discriminate the true and the untrue, the good and the bad, the real and the unreal."[2]

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[1] *Harper's Monthly Magazine*, September, 1929.

However, it would not be fair to say that all psychologists, young and old, succumb to the machine-culture in equal degree. Some escape the disease altogether; some have it in its most virulent form, and some only moderately. There is every shade of Behaviorism, from the palest pink to the most saturated red. And that again is because scientists are "human, all too human." There are conservatives and radicals and liberals in science as in politics, business, art, religion, and all other spheres of interest and activity. When one becomes a scientist he does not cease to be a human being. He takes his temperament and mental type with him wherever he goes. A few samples will suffice to illustrate the varieties of Behaviorism.

But before these are given it may be worth while to point out that Behaviorism is no new "ism"; no modern mental autogeny. It is a natural offshoot of materialistic ontology and cosmology and atheistic theology. Wherever and whenever the latter obtain, Behaviorism will also be found. Thus, among the ancient Greeks, Democritus reduced the universe to a mechanism of atoms. Man is a bundle of atoms; ideas are fine atom-complexes. There is no teleology anywhere. Mechanical cause alone is operative. He and his teacher, Leucippus, were the first materialists and, by the same token, the first Behaviorists. Of course they were atheists. So was Epicurus a century and a quarter later; and still later, Lucretius, his Roman follower. In the beginning of the seventeenth century, Thomas Hobbes interpreted all phenomena—physical, psychological, and sociological—in terms of motion. Consciousness is brain motion. Everything is amenable to mathematical treatment. Descartes, in spite of his *Cogito, ergo sum,* his dualism, and his proofs for the existence of God and the world, was a Behaviorist, though somewhat hesitating and inconsistent. Animals, he held, are mere automata responding to external stimuli. Only the fear of the Church, or possibly that a hang-over from his early theological training, made him make a partial exception of man, to the extent of allowing him a soul, which can control the body. But most of its actions are automatic, like those of the lower animals.

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[2] Münsterberg: "Science and Idealism," p. 70.

About the middle of the eighteenth century, Lammettrie, in his "L'Homme Machine"; Condillac, in his imaginary statue endowed only with the sense of smell; Helvetius, von Holbach, and other Encyclopedists did what Descartes did not dare to do—namely, reduce man to a mere automaton. All conceptions of God, soul, mind, and purpose were fearlessly discarded. "Matter and motion alone exist. Mind is nothing but an occult term that accounts for nothing. All things alike are necessary, and subject to mechanical law. . . . Necessity rules in the moral, as in the physical, world; the particles of dust and water in a tempest or a whirlwind move by the same necessity as an individual in the stormy movements of a revolution. There is no difference between the man who throws himself out of a window and the man whom I throw out, except that the impulse acting in the second comes from without, the other from within his own mechanism."[3]

The late Professor Titchener, criticizing Watson's claim that "Behaviorism is an American production," goes back only to Comte and Cournot. How absurd the claim is, the above brief sketch sufficiently indicates. The writer recalls a lengthy discussion he had with Watson soon after the latter began publishing his Behavioristic views in the journals. Unable to convince him of the error of his ways, I finally said: "The trouble with you, Watson, is that you don't know any philosophy." "I admit it," he replied, "and I don't think I have missed anything." To which it was easy, of course, to make the obvious retort: "But you are not in a position to judge." If Bacon's aphorism, "A little philosophy inclineth man's mind to atheism," be true, what can be expected from no philosophy at all? The other half of the aphorism is also worth quoting: "but depth in philosophy bringeth men's minds about to religion." It would be very interesting and illuminating to ascertain how much philosophical training the Behaviorists have had.

Coming now to the different shades and tints of present-day Behaviorism, it will suffice to indicate that the color-scale ranges all the way from Watson,

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[3] Rogers: "Student's History of Philosophy," p. 398.

Meyer, Weiss, and Holt, who taboo the word "consciousness" and consider any reference to it a scientific sin, to Yerkes, Warren, Pillsbury, Dunlap, Bawden, Tawney, Colvin, and Bagley, and most recently, Miss Calkins, all of whom, while they agree in the main with Pillsbury that "consciousness is at once an important means of understanding behavior and an interesting object of investigation for itself," also indorse the position of Yerkes when he says: "Nevertheless I must insist that I am still a behaviorist, for I believe in the importance of the scientific study of behavior and am more deeply interested in it than in any other scientific activity."[4]

Parmelee regards the mind as "a stage in the determination of certain kinds of behavior" and likens it to "the trigger of a gun or a button which releases an electric current which explodes a mass of nitroglycerin." Meyer, in "The Psychology of the Other-One," omits the word "consciousness" from his index, and Watson, contrasting the old psychology with Behaviorism, says: "All schools of psychology except that of behaviorism claim that '*consciousness' is the subject matter of psychology.* Behaviorism, on the contrary, holds that the subject matter of human psychology is the *behavior or activities of the human being.* Behaviorism claims that 'consciousness' is neither a definable nor a usable concept; that it is merely another word for the 'soul' of more ancient times. The old psychology is thus dominated by a kind of subtle religious philosophy." And to make sure that no vestige of the "soul" or consciousness remained in his Behaviorism, WATSON he tells us, "he dropped from his scientific vocabulary all subjective terms such as sensation, ✓ perception, image, desire, purpose, and even thinking emotion as they were subjectively defined."[5]

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[4] A comprehensive classification of Behaviorisms is to be found in A. A. Roback: "Behaviorism and Psychology."

The Behaviorist's platform is as simple as his definition of psychology. "The rule, or measuring rod, which the behaviorist puts in front of him always is: Can I describe this bit of behavior I see in terms of 'stimulus and response'? By stimulus we mean any object in the general environment or any change in the tissues themselves due to the physiological condition of the animal, such as the change we get when we keep an animal from sex activity, when we keep it from feeding, when we keep it from building a nest. By response we mean anything the animal does—such as turning toward or away from a light, jumping at a sound, and more highly organized activities such as building a skyscraper, drawing plans, having babies, writing books, and the like."[6] The only difference between Behaviorism and physiology, he admits, is "in the grouping of its problems, not in fundamentals or in central viewpoint. Physiology is particularly interested in the functioning of parts of the animal—for example, its digestive system, the circulatory system, the excretory systems, the mechanics of neural and muscular response. Behaviorism, on the other hand, while it is intensely interested in all of the functioning of these parts, is intrinsically interested in what the whole animal will do from morning to night and from night to morning."[7]

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[5] "Behaviorism," p. 6. [6] *Ibid.*

Other contributors to this volume will expose the fallacies and absurdities of the Behaviorist's viewpoint and platform. I shall limit myself to pointing out two fundamental weaknesses. In the first place, when Watson and his followers say that the only question they keep before themselves is, "Can I describe this bit of behavior I see in terms of stimulus and response?" they forget that the description will be so much sound, signifying nothing, unless it be *interpreted* in terms of the reader's or listener's own inner experience. Nay, more, the describer himself, unless he can reduce himself to a talking-cinema which knows not what it sees and hears, must resort to his subjective experiences in giving his description. If human beings were mere recording instruments, who or what would formulate scientific laws and principles? And *for* whom? Other recording instruments? Why? That they might better adjust themselves to their environments. But that implies purpose, which the Behaviorist strenuously denies. We have left then only recording instruments which adjust themselves to their environments for no purpose, unless it be that of adjustment. And that leads to the conclusion arrived at by a recent Behavioristic poet, that "dust is the common source from which

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[7] "Behaviorism," p. 10.

. . . . stream
The cricket's cry and Dante's dream."

And Theodore Dreiser with a facile flourish reduces everything to "those rearranging chemisms upon which all the morality and immorality of the world is based."

Rufus Jones has made the best answer to this nonsense. "We are quite willing to be told," he writes, "that we are curiously carved pieces of the earth's crust, or strange dust-wreath vortexes, if we may add to the account *the something more which we know we are.* The whirling dust-wreaths of the street do not have longings. The bits of earth-crust which we throw about with our shovel do not yearn for what is not and then forthwith construct it. Desires and strivings, visions and ideals, emotions and sentiments, are as much a genuine part of us as are the iron and lime and phosphorus in our bodies. We have insights of what ought to be, appreciations of beauty, convictions of truth, experiences of love, and these things are not part of the earth's crust. They are not physical realities. They are not *results* of masses of matter in motion. They cannot be adequately explained mechanically. They are real for mind and only for mind."[8]

The other main weakness of Behaviorism is the assumption that the physical sciences are the only sciences and that the tangible and visible are the only legitimate materials of science. What then becomes of mathematics, logic, ethics, æsthetics, jurisprudence, and psychopathology? Are these mere myths? And as for the latter half of the assumption, Professor Hollingworth has acutely observed that the Behaviorists "have a peculiar mania for visual phenomena and are deaf and dumb and otherwise insensible to smells, tastes, pains, and the great array of thermal, tactile, kinæsthetic, and affective objects . . . because such objects cannot be seen, and will not inscribe themselves on smoked drums."

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[8] "New Studies in Mystical Religion," pp. 189, 190.

Elsewhere I have written: "Twenty-five years ago Stanley Hall, speaking, I think, before the American Psychological Association, warned psychologists to beware of mathematics. Were he living to-day he would probably warn them against animals and their conditioned reflexes. Not that conditioned reflexes are not true, but that they do not solve the whole riddle of mental life. We are essentially false to the theory of evolution when we explain man altogether in terms of the animals he has left behind him and not at all in terms of the *Übermenschen* who have already sprung from his loins. The materialists' formula seems to be: if you wish to understand man, even the highest and best that is in him and his works, study mice and guinea pigs, or better still, perhaps, the amœbæ and paramecia. They apparently forget that because physics and chemistry can discover only what is physical and chemical in man it does not follow that he is only a bundle of physical forces and chemical compounds, nor because animal psychology can discover only what is animal in man does it follow that he is animal and nothing more."[9] To understand man it is necessary to envisage his destination as well as his origin. To know only the latter is to know but half the story.

Quoting again from the same article: "The issue, boiled down, is fairly simple and clear-cut: either we are dust, whatever that may be; mere arrangements of chemisms (another inexplicable); or we are some sort of temporal individuations of Reality whence come our norms or ideals in speech, thought, art, and conduct; our initiative and creativeness, our loyalties and hopes, our freedom, and will to struggle, adventure, and accomplish. Something like the quantum theory of light may also apply to mind or consciousness. Our sciences, arts, philosophies, morals, religions, and all their by-products are likewise either fortuitous and meaningless groupings of mindless stuff, like wind-swept sands; or else they are the accumulations of hard-earned capital, whose investments and currency—truth, beauty, goodness, peace, comfort, security, and happiness—are guaranteed by the Creator of ever-increasing values. . . . There is nothing in science or philosophy which compels us to assume, much less admit, that our moral, religious, and æsthetic experiences and the systems and institutions they give rise to are but precipitates, or surrogates of collocations of electrons and protons that have none of those properties in them. At least equally plausible and certainly more æsthetic, ethical, and dynamic is the assumption that they are of the very nature of Reality itself, of the *deus ex et in nobis*. . . . At any rate, the burden rests on the materialists to show how we can have truth, beauty, and goodness, if they do not reside in the very warp and woof of being."

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[9] "Behaviorism for Mysticism," *Methodist Quarterly Review*, July, 1928.

Finally, I wish to repeat the warning I uttered before the Southern Society for Philosophy and Psychology: When the Sophists taught the post-war youths of Athens that the individual is a law and a measure unto himself, that there is no authority or universal norm, the far-seeing Socrates realized that the inevitable outcome of such a doctrine would be social disintegration and confusion, resulting in the downfall of Athenian civilization. Our present-day Sophists, with equal recklessness, are preaching equally disturbing doctrines to the present generation. And like their ancient prototypes they are gathering around them youths, and in this day maidens too, who delight to hear that the old gods are dead and the old beliefs with their checks and balances and controls are without validity and foundation in fact; that man is merely a two-legged goat who has been absurdly and unnaturally conditioned by the psycho-social environment projected from the far-distant and ignorant past; that the time has come for them to recondition themselves and strike off the antiquated shackles—to give full rein to their impulses, instincts, and tendencies, or, as the college flappers say, to liberate their libido and "can" their complexes. Though why a Robot should advise other Robots what to do is another of the many mysteries Behaviorism has not yet solved.

It may be that the ancient intelligentsia were wiser than we, in that out of a proper regard for the social welfare and stability they revealed their theories and speculations only to the initiated, in a language not understood by the masses. The natural scientists likewise insulate themselves with esoteric symbols, but the humanistic scientists have no such protective devices. It is all the more incumbent upon them, therefore, to conduct their investigations and deliberations with the utmost thoughtfulness and consideration, with true pedagogical tact and statesmanship. For he who would destroy the customs and traditions that energize, integrate, and stabilize individuals and nations, the beliefs by which men live, should be sure that he has in his other hand something of greater value to give. Never before in human history has there been such need for stabilizing and integrating forces in human lives, for never before have human minds been bombarded by so many and so powerful stimuli. Our minds are almost literally torn into shreds by the thousand and one objects, interests, and distractions that constantly demand our attention. We are in high gear and going on our nerves—not only when we work, but also when we play and seek amusement and recreation. The result is a bumper crop of nervous and mental disorders and moral deterioration. Mental hygiene, if nothing else, demands something that will integrate and harmonize us, that will furnish the motives and occasions for us to become whole as well as holy, to find our souls cleansed and strengthened by losing them in something larger and other than ourselves. And as yet man has found nothing better than religion and art to accomplish this, for in both the particular makes contact with the universal and feels itself unified and enhanced. It is the function of education, using the term in its broadest sense, to integrate the individual, physically and mentally, into a harmonious whole, and while doing it to integrate him also with his fellow men. But even after it has accomplished this, it has fallen short of a complete integration and synthesis. For education, at best, can bring forth only an abortive religion, like August Comte's, in which the vain attempt was made to substitute Humanity for God. The brotherhood of man calls for the Fatherhood of God, in some sense, to complement and underwrite it. The soul or mind of man demands a higher and completer synthesis than education alone can give it. Its feeling of separateness from its *Urgrund*, its homesickness, so to speak, can be cured only by a re-ligio experience.

If, therefore, in view of this profound need, it be impossible to curb or censor the Menckens, Lewises, Dreisers, Cabells, and other sophists both in popular literature and in psychology, those of us who are sensible of our social responsibility should at least rebuke and repudiate them in no uncertain terms. I yield to no one in my respect for serious and high-minded investigators, nor would I, of course, advocate the slightest curtailment of the modest measure of a *Lehr-und-Lernen Freiheit* we now enjoy; but we need to remind ourselves that the abuse or misuse of liberty by the reckless, the irresponsible, and the *Ausgelassenen* inevitably leads to the loss of it or its serious curtailment.

It is with the view of furnishing an antidote to the behavioristic poison that has been spread so freely among the young that this volume is sent forth to the public.

PART I

THE GENERAL PRINCIPLES OF BEHAVIORISM

I

THE PSYCHOLOGY THEY TEACH IN NEW YORK

BY WILLIAM M'DOUGALL

LIKE a good American, I begin by telling two funny stories. Once upon a time there was a sophomore,[1] intelligent but idle, who took a course in psychology; he neglected to read the prescribed text and cut his lectures shamelessly. When quiz-day came and a question was put to him, he had no inkling of the proper answer. But he had an inspiration. He had noticed that most of his fellow students, when questions were put, replied by uttering the word *sarbons,* a reply which seemed to soothe and satisfy the instructor. He, therefore, uttered this word of mystic potency and, to his joy, it produced its usual effects—a smile and a good mark. On leaving the lecture room our hero was moved to ask of a companion what a *sarbon* might be. It was then explained to him that *sarbon* is the colloquial form of a mighty formula which solves all problems in psychology—namely, stimulus-response bond (S-R bond). The bond in question is conceived as a nervous path connecting some sensory point of the body with some muscle or group of muscles. Every human action is conceived as in principle explicable by tracing the transmission of a physical impulse from a stimulated sensory point, along such a nervous path or bond, to a muscle group. This is the essence of the celebrated theory that man is a machine and his every action a reflex action, a purely mechanical effect of a physical stimulus. Thus presented with the key that solves all problems, our sophomore remarked: "Surely, that is a theory of morons, by morons, and for morons!" But he soon found that any student, if he ventured to doubt the perfect adequacy of the theory of *sarbons*, was smiled upon with pity by all his fellows as one who still dwelt among the metaphysics and the mythology of the dark ages. Moreover, he aspired to enter the teaching profession; and he soon found that in that noble profession all other skepticisms are tolerable, but not skepticism of the *sarbon;* in short, the *sarbon* was, he found, the indispensable key to practical as well as to theoretical problems. So he was converted, and went on his way rejoicing.

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[1] This story has been circulating in the psychological laboratories; its significance entitles it to the honor of print.

My second story requires for its appreciation a keen sense of humor. The statisticians have calculated that of all the boys now living in New York City one-half will sooner or later become convicted criminals. The humor of this story appears clearly only when we bear in mind that New York is the metropolis of the American nation, the nation which claims the moral leadership of the world; and the further fact that the city is the scene of operation of several universities, one being the largest in the world, of a school for child-educators which in size and prestige far surpasses every other, of a vast system of free public schools, and of many immensely wealthy, active, and highly organized agencies for moral uplift and social improvement. To me, an Englishman of partly Scotch ancestry, therefore inevitably deficient in humor, the story seems to be merely tragic; but to anyone with a keen sense of humor the story of this conjunction must surely seem very funny.

But why do I tell these two stories? Are they entirely unrelated to one another and to the topic of the discourse they introduce, as funny stories so often are? No! I venture to suggest that the two stories are intimately related and really contain, when this relation is grasped, the essence of my discourse.

Do I, then, suggest that the terrible crime rate of America is the effect of the famous *sarbon* theory? I do not go quite so far as that. But I do suggest and contend that the crude materialistic theory of human nature, the theory that man is a machine and nothing more, taught dogmatically every year to hundreds of thousands of innocent school-teachers and college students, cannot fail in the long run to contribute very considerably to the decay of morals and the increase of crime. For it is a theory utterly incompatible with any view of man as a responsible moral being and utterly incompatible with any religion that the plain man could recognize as such; a theory which represents man as incapable of choosing between good and evil, as the purely passive sport of circumstances over which he has no control; a theory which, if it is accepted, must make all talk of self-control, of self-improvement, of purposes and ideals seem sheer nonsense, survivals from an age of naïve ignorance.

Fortunately, human nature has a vast capacity for illogicality, for accepting a theory and acting as though it were utterly false. Hence, no doubt, most of the multitude who innocently imbibe this doctrine continue to strive conscientiously to do their duty, continue to pursue some ideal of efficiency, honesty, and public service, and to treat their children and their pupils as moral beings. But in the long run, as the years pass and successive generations of students absorb this dogma, it is inevitable that their attitude toward life and its problems shall be affected and that the tone and manners of society shall become increasingly such as the theory requires or points to.

Earlier centuries have had their persuasive teachers of materialism. In the eighteenth century La Mettrie and Baron d'Holbach had many readers; in the nineteenth, Ernst Haeckel and Jacques Loeb were esteemed great scientists. But never before the present century has sheer dogmatic materialism been propagated by a vast system of public instruction and by universities of the highest prestige counting their students by tens of thousands. And in the earlier centuries materialism was taught merely as a view, a guess, in support of which much might be said by an ingenious exponent out to shock the bourgeoise and to combat the influence of a too dogmatic and thought-less priesthood. But now it is taught as truth established by scientific research and supported by all the immense prestige of modern science. And, though something of the desire to shock the bourgeoise may be suspected in some of the modern exponents of materialism, most of them teach it in simple faith that it is true, a faith and singleness of motive which render their teaching the more effective.

The theory that man is a machine is primarily a deduction from a naïve metaphysical assumption, the assumption that the universe constitutes one vast mechanism. But the psychologists with whom we are here concerned claim to have demonstrated experimentally the truth of this assumption as applied to man and to have shown in considerable detail just how the machine called man operates or, rather, is operated, how its strings are pulled, how all its movements, whether of limbs or of speech organs, are mechanically caused, how all that we call effort or volition is an illusion, all that we call memory a mechanical registration of physical traces, all that we call faith, hope, charity, and generosity, mere names to which in reality nothing corresponds.

If this theory of human nature were true, were scientifically established, we should of course have to accept it, to grin and bear it as best we could, and should have to counteract as far as possible its depressing moral influence. Those of us who are opposed to it are suspected by its exponents of dishonesty, denying the truth because we dislike it; they seem unable to imagine that we find their evidence and their reasoning utterly inconclusive and honestly believe them to be hugging a monstrous error. One of the most distinguished of them has been heard to tell his students openly, referring to a leader of the opposition, "X—— is a charlatan." I happen to be intimately acquainted with that person, and can testify that, faulty and fallible as he is, he is anything but a charlatan. In face of this simple-minded attitude, protestations and disclaimers are of no avail. But it may be of service to sketch the actual state of affairs, as follows:

The metaphysical assumption from which was deduced the theory that man is a machine is now very generally discredited; its adherents become fewer with every year that passes. The doctrine of emergent evolution, now rapidly coming into general favor, is leading away from it many biologists who had felt themselves bound to the machine-theory in spite of its many absurd implications, showing them a way out of what seemed a blind alley. But the psychologists of the group criticized remain unaffected by this movement of contemporary thought; for they claim to have replaced the metaphysical foundation of the theory with scientific demonstration of its truth. Of this alleged scientific demonstration the very core and essence is the principle of reflex action and of its adequacy for the explanation of all human and animal behavior. The conception of reflex action comes down from Descartes; but modern research has made it a truth rather than a brilliant guess and has shown that the principle does seem adequate to the explanation of many of the simpler, more machinelike movements of the parts of the body.

The most definite step in the extension of this principle to the explanation of all action was made by the distinguished head of Teachers' Training College of New York City, Dr. E. L. Thorndike, at a time when he was an enthusiastic young disciple of William James. Dissatisfied with the somewhat vague and anecdotal basis of the animal-psychology that had taken shape in the later nineteenth century, Thorndike set out to observe just exactly how animals behave under strictly controlled conditions. This was a most meritorious effort, in the course of which the young psychologist proved himself a vigorous and independent thinker. He worked in the main with cats, and his most famous experiment consisted in shutting a very hungry cat in a cage or puzzle-box, with food near the barred front of the cage but out of reach of the imprisoned animal; the cage had a door secured by a latch so placed that movements of the cat might turn the latch and allow the door to fall open. This experiment he repeated many times with each one of a number of cats. The general result was that each cat learned sooner or later to turn the latch with little delay and promptly to secure the food.

Such learning was regarded by Thorndike as a typical instance of animal learning and as a typical display of whatever may properly be called "the intelligence of animals." So far, we may agree with him. Thorndike's account of such behavior, of such "intelligent" learning, seemed to point to the following interpretation. The cat in the cage does not try to escape from it in order to get the food. It is restless because hungry; and this means that its empty stomach contracts and, in so doing, stimulates sensory nerve-endings in its walls; and such stimulation, propagated to the brain, keeps the animal on the move—*i. e.*, making vague reflex movements; these, in turn, are modified by other reflexes excited through special sense-organs such as those of touch and vision and hearing. In the course of a long succession of such *purely random* mechanically determined reflex movements, some one movement sooner or later brings some part of the cat in contact with the latch in a way that releases the door and allows the cat to escape from the cage. Thus the cat's escape on the first occasion is a purely mechanical reflex process. But the cat on frequent repetition of the experiment "learns" to escape promptly, to make with a minimum of delay the necessary movement for the release of the door. How is this fact to be explained? Here Thorndike's bold attempt to find an explanation of a typically "intelligent" action in terms of physics and chemistry fell short of completeness. Of all the cat's movements, one only leads to escape and food. This one only is, then, said Thorndike, followed by pleasure; and such pleasure "stamps in" the tendency to this particular movement; or, in other words, the pleasure facilitates that particular reflex action, improves or strengthens the *sarbon* between the sensory point and the muscles concerned.

A mental element or factor—namely, pleasure—thus remained in Thorndike's scheme. But it was easy to assume that "pleasure" could somehow be interpreted in terms of some physical or chemical peculiarity of the event, some peculiarity not yet revealed by science. Hence, all the mechanistically minded accepted Thorndike's interpretation with pleasure; and the pleasure seems to have stamped it very deeply into their brains. For the great merit of the scheme was that it seemed to wipe away from such "intelligent" action, and therefore from all learning-processes, every trace of purpose, all taint of teleology, all implication of endeavor or striving of the animal toward a goal. The whole train of events seemed to be successfully explained without assuming that the animal was trying to get out or to reach the food; it was merely making random reflex movements.

But the main ground of the immense success and influence of Thorndike's experiment was that he claimed to find *experimental* evidence that nothing of the nature of insight and foresight, of understanding or intelligence as commonly understood, was involved in the process of learning. In the seventeenth century Descartes had proposed a similar mechanical explanation of all animal behavior; and it had found favor with many. But it had remained merely an ingenious guess without experimental support. The events that occur within the nervous system are on so minute a scale and are so complex, and they occur in structures so inextricably entangled with other similar structures, that the interpretation of them is now and probably always will remain a matter of inference. Thorndike described the facts in a way which seemed to justify the inferential interpretation he put upon them—namely, he reported that, in general, the cat on repetition of the experiment showed no sudden improvement in its escape-behavior, such as might seem to imply that it had gained some "insight" into the problem that confronted it, some understanding, however dim and imperfect, of the relation of the latch and of its own releasing movement to the opening of the door: rather, he reported, the series of movements made by the cat, at first long and varied, becomes on successive occasions briefer and less varied; until finally it approximates to the simplest possible sequence of movements that will suffice to release the latch. This alleged gradual acquisition of the appropriate movement-sequence was the essential novel feature, the experimental basis for a "strictly scientific" or purely mechanical explanation of all animal and human action; it was the experimental foundation of the *sarbon* theory which Thorndike himself proceeded to apply with admirable thoroughness as the cue to all problems of human psychology, and hence, through the immense influence and prestige of Teachers' College, to make the materialistic foundation of educational theory and practice throughout America, and more especially in New York.

We have seen how Thorndike's theory of "intelligence" remained incompletely purified of all mental implications—namely, it still assigned a rôle and a function to feeling, to pleasure, and pain. Some of the mechanists sought vainly to purge it of this foreign element, this remnant of primitive superstition, by propounding vague guesses as to how pleasure and pain may be interpreted in physico-chemical terms. Others took the more effective line of arguing that the assignment of a rôle to pleasure was needless; for, said they, the cat's releasing movement is always the last of the series that leads to escape; and it is also the only one of such series that is made upon every occasion of escape; hence, the two great principles of recency and frequency of repetition suffice to explain the fact that, of all the supposedly random reflex movements made by the cat in the cage, this one alone becomes more and more facilitated, until it alone is made promptly and with machinelike regularity. Thus the mechanical interpretation of "intelligent" action was purged of the last surviving remnant of mentality.

But a further step remained to be accomplished. It was now possible, it was claimed, to explain all intelligent behavior of animals without attributing to them anything of the nature of consciousness, of awareness of objects, of sensations, ideas, feelings, or strivings; therefore, we no longer have any ground for attributing conscious experience of any kind to animals. Further, the "intelligent" actions of men are not different in kind from those of the animals, they are merely more complicated; hence we are required by the scientific principle of economy to explain all human action also without taking account in any way of conscious experience of any kind; human behavior also is merely mechanical reflex action, simple or complex; and human "intelligence" is now proved to be just what Herbert Spencer said it was eighty years ago—namely, a mechanical compounding of mechanical reflexes. Thus Behaviorism emerged full-blown from the mouth of Dr. J. B. Watson. It remained and still remains a question whether the radical Behaviorist means to deny the reality of conscious experience, or merely holds that to take account of it in any way is utterly unprofitable, in fact, prejudicial to all understanding of and successful dealing with human problems. Anyway, he would rule out of psychology and out of our view of our fellow creatures, animal and human, all notion of them as conscious beings, capable of awareness of things or impressions, of experiencing feeling, emotion, or effort.

The events I have recited occurred before the Great War. When that upheaval subsided, American psychologists began to get wind of certain Russian experiments which, now accessible in detail, have given great support and impetus to the mechanical psychology. For more than twenty years the celebrated physiologist, Professor Pavlov, has carried on in his special laboratory at Petrograd, with the aid of numerous colleagues, a very remarkable research into the phenomenon known as "the conditioned reflex." The essential facts established are as follows. If a piece of meat is held out to a hungry dog, his mouth waters. If a bell is sounded just before the meat is offered, and if this succession of impressions is repeated a large number of times, sooner or later the sound of the bell suffices to cause the dog's mouth to water, even if no food be offered. Before the experiment the sound of the bell produced no mouth-watering; after a certain number of repetitions (20 or more, often many more) it does produce that effect. The mouth-watering in response to the bell is called "a conditioned reflex." These experiments, varied in a hundred ways and carried out with a precise and admirable technique, are regarded as confirming the principle of the *sarbon*. They may be said to have taken their place beside Thorndike's famous experiments as the experimental foundation of the *sarbon* theory, the central core of the dogma that man is a machine and nothing more.[2]

A third series of experimental observations completed the tripod which supports the airy structure of the psychology most in vogue in America. John Locke and the other founders of modern psychology had asserted that there is nothing in the mind or the intellect but what enters by the channels of sense; to which Leibnitz had replied: "Nothing except the intellect itself!" The one party asserted that ideas get into the mind through the senses, and that mental life is nothing but the interplay of these ideas, the word "mind" standing for nothing more than the sum total of the ideas. The other party asserted that the mind is something that has its own peculiar structure and modes of activity, its own organization, capacities, and laws of action; and all of these were held to be latent or potentially present in the inborn nature of the individual, to be as definitely laid down in his constitution as the color of his eyes or the shape of his nose. There was joined a battle which still rages, with extreme partisans of both views still in action; while the majority of psychologists hold aloof, preferring not to touch a problem so difficult and so thorny. At first the issue was defined in the form, Are there innate ideas? Descartes had made the question one of prime importance by asserting that all men have an innate idea of God, and by finding in this alleged fact a proof of the existence of God. Locke had proved to his own satisfaction that there are no innate ideas, and that the idea of God, like all other ideas, is acquired, is impressed by experience upon the mind, likening the mind of the new-born infant to a smooth tablet (the *tabula rasa*) ready to take any impression or form that the circumstances of life may give it; "wax to receive and marble to retain." At the present day the Leibnitzian or constitutionalist view is held in many forms. There are those who, like Dr. C. G. Jung, teach a view not unlike that of Descartes; they hold that the ways of feeling and thinking of each race and of each man, in things both great and small, in religion and in philosophy, in science and in poetry, in the trivial incidents of every day and in the great crises of life, are largely, though not wholly, determined by the innate constitution of body and mind. The most moderate modern form of the Leibnitzian view holds that the individual man, like the individual animal, inherits at least certain more or less definite tendencies to think and feel and act in certain ways in face of certain situations, situations of a kind to which the race has become adapted through long experience of such situations. Such tendencies are commonly spoken of as instincts. The party of Locke is represented in an extreme form by those who deny that man has any such innate tendencies or instincts. And most of those who deny man all instincts deny him also every other form of innate capacity, aptitude, or talent.

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[2] Professor Pavlov, however, has written as follows: "It would be the height of presumption to regard these first steps in elucidating the physiology of the cortex as solving the intricate problems of the higher psychic activities in man, when in fact at the present stage of our work no detailed application of its results to man is yet permissible."

This denial is founded on inference from the *sarbon* theory. If all that we call the mental life and behavior of man is nothing but the play of mechanical reflexes, the innate basis of behavior can be nothing but a number of inborn reflex arcs or *sarbons*. Some, like Thorndike, apply the term "instinct" to such inborn *sarbons;* but this is merely to confuse the issue, to perpetuate one of the most pernicious confusions of modern psychology. The word "instinct" properly expresses a conception of human and animal action very different from that of reflex action. The two terms "reflex action" and "instinct" stand for two radically opposed theories of action, the mechanical and the hormic theories. The denial finds ready acceptance in America because it seems to give scientific support to a popular and peculiarly American dogma, the literal acceptance of the equality of all men. If no man has any inborn aptitudes other than a number of *sarbons*, then all men are born literally equal, and all the great differences we find between one man and another, or one race and another, are due to different environmental influences.

But the great dogma of the literal equality of all men has found its prophet in Dr. J. B. Watson, who claims to have given it the status of a truth established by experimental science. Watson observed systematically a large number of young infants, and, like others before him, he found himself able to provoke only a very limited variety of reactions. He could make them kick, he could make them squeal, and he could make them smile; and that was all, apart from such simple "reflexes" as the closing of the eye or the swallowing of food. This failure to observe any other complex reactions than these three he has loudly announced to the world as establishing the dogma of the *tabula rasa;* and the American World has responded with loud shouts of praise. For here was the scientific proof of its favorite dogma, the equality of all men.

And Watson did not stop here. Combining his great negative discovery with the theory that all modification of inborn nature is an acquiring of new *sarbons*, of conditioned reflexes, he boldly announced that he was prepared to produce from any human infants given over wholly to his tender mercies a corresponding number of human beings of any desired type, geniuses of the first water, mathematicians, musicians, artists, scientists, statesmen, executives, anything, in fact (other than theologians or metaphysicians), according to specifications given. In a world encumbered with a distressful excess of morons and criminals and but scantily supplied with men of genius, this was welcome news. The chorus of praise swelled yet louder. One great New York daily said of one of his books, "Perhaps this is the most important book ever written"; another asserted, "It marks an epoch in the intellectual history of man"; and, if Watson's claim had the slightest shadow of foundation, such praise were not excessive. For here was the promised realization of mankind's fondest dream, the dream of the perfectibility of man; the perfection of the human race was to be attained, not by long ages of blood and tears, not by painful struggles of self-discipline and self-development, not by centuries of slow evolution of improving forms of social organizations achieved by much thought, experiment, and self-sacrificing effort; it was to come suddenly and at once, if only we would put Dr. Watson in supreme charge of a sufficiently large and well-equipped State nursery in which all infants might be molded to the types desired.

Such is the theory of human nature which has been rapidly becoming the foundation of the educational practice of America; a synthesis of three theories: the theory that intelligence is the effecting of a new mode of reaction in a purely random mechanical fashion (the *sarbon* theory); the theory of the conditioned reflex as the prototype of all learning; the theory of the infant mind as a smooth waxen tablet indefinitely susceptible to molding by the hand of the educator. I say the educational practice of America is increasingly molded by this theory: for, although New York City may truly claim to be the home and center of this theory, its teaching has spread across the continent like prairie fire before which nothing can stand. Even the South, America's pathetic home of lost causes, her last refuge for piety and conservatism, is rapidly becoming mechanized, with cement roads and noisy silent-policemen in every town, plumbing in every room, and the *sarbon* theory in every school. A Southern teacher recently complained to me that, wherever he goes, he finds Behaviorism rampant in the schools, and that, because he cannot accept it, he finds himself regarded by his colleagues as hopelessly out-of-date.

Let us look at each of the legs of the tripod in turn, and in the reverse order of their mention above.

Watson's observation in young infants of only three complex reactions, kicking, squealing, and smiling, hailed by a multitude of iconoclasts as a great discovery, has *no bearing on the question it is supposed to* *have settled in the negative*, the question of the instinctive basis of human nature. The same method applied to young birds would "prove" that birds also have no instincts, no instinct to mate, to build, to sing, to migrate. And his claim to know how to produce to order and in unlimited quantity every type of genius is preposterous. Watson is by vocation an expert advertiser, and to the advertising profession much is permitted. In any other profession the man who made any similar claims would be generally recognized as a charlatan. His book may in truth mark an epoch in the intellectual history of America; but it is to be hoped that the epoch will be remembered as the low-water mark of critical judgment in America.

To sweep aside all the immense mass of evidence of the instinctive basis of human nature, accepted in all other countries by the highest authorities from Darwin to Freud; to pretend to close the door on all the fundamentally important problems of racial and individual peculiarities of mental constitution, just when these problems are becoming the center of interest of European psychologists; to pretend to have finally established the long-discredited doctrine of the *tabula rasa;* and all this on the flimsy basis of a few negative observations of young infants; this, I say, is a degree of childish presumption that could not flourish for a moment in any other country than America.

The second leg of the tripod, the theory that all learning, all intelligent adaptation of action, is the acquiring of conditioned reflexes is more respectable.

The work of Pavlov and his colleagues is deserving of all praise. But the conditioned reflex, though it is a reality, is something very different from an intelligent adaptation. The conditioned reflex is built up gradually by many repetitions: twenty is the minimum, and the number often runs above a hundred. And, if the conditions under which it is provoked be a little modified, it ceases to be manifested and seems rapidly to lapse. On the other hand, the intelligent adaptation, whether of man or animal, is often effected by a sudden flash of insight; and once achieved is likely to be repeated indefinitely under a widely varying range of similar circumstances, and with wide differences of means employed.

The first leg of the tripod, Thorndike's theory that intelligent adaptation is a perfectly random process, a happy conjunction of movements occurring accidentally among a series of such movements, this theory, though it has dominated American psychology for nearly thirty years, has not remained uncriticized. Professor Yerkes, the most distinguished and prolific worker in animal psychology in America, has never accepted it and has shown in much of his work its illusory nature. Professor Köhler of Berlin, in his celebrated study of chimpanzees, has shown very clearly that it is not true of them. Professor Spearman of London has marshaled a vast array of experimental evidence to show that the theory will not apply to man, and has forced Professor Thorndike very near to an admission of the fact.

But it has been reserved for a young graduate, Dr. D. K. Adams, to deal the theory its *coup de grace* by showing that the alleged facts on which Thorndike based the theory were fallacious observations and interpretations.[3] This he has done by repeating Thorndike's original experiments, observing with an open mind, and varying the conditions in such a way as to allow the subjects of the experiments an opportunity to use what intelligence they possess. Three years were devoted to this work in the psychological institute of Yale University, other allied forms of experiment being added. Neither Dr. Adams's procedures nor his conclusions can here be stated in full. It must suffice to cite: "The experiments of Thorndike upon cats are examined and found to be inadequate to the conclusions drawn from them." Further "the puzzle-box technique, as used by Thorndike and myself with the subject inside, has slight utility for the study of adaptive behavior." And in general Adams comes to the conclusion that the animal's success depends upon *insight* into the puzzle-situation and upon *foresight* of the goal to be achieved. "All learning may be said to involve the representation of the ends of acts at moments before their actual occurrence."

Dr. Adams's fatal blow to the foundation of the *sarbon* theory has been quickly followed by another, hardly less destructive of it. To the International Congress of Psychologists (gathered at Yale University in September, 1929) Dr. K. S. Lashley, one of the highest authorities on the functions of the nervous system, presented an address as president of the American Psychological Association. Founding his conclusions upon a long series of very careful experiments on the brains of animals, he told the assembled psychologists that the reflex-action theory of all cerebral activity, which has so long been very generally accepted, must now be rejected, that all views of cerebral function are now in the melting pot and must be completely revised.

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[3] Comparative Psychology Phonographs No. 27. May, 1929. Baltimore.

Thorndike's conclusions, which for a whole generation have been the main foundation of the *sarbon* theory, are thus finally exposed as fallacious. The theory that man is a machine is left without a single leg to stand upon; it remains floating upon a cloud of metaphysical prejudice, upon the assumption that all events are mechanical. This assumption, in order to avoid the appearance of metaphysical prejudice, is sometimes stated in a rather different form. It is said that, whatever the real nature of the events we observe about and within us, Science can deal with them effectively only by assuming them to conform to the mechanistic type. To this contention we reply by asking for the warrant for this dogmatic assertion, and pointing out that mechanistic biology has come to a deadlock and finds itself in a blind alley, from which it can escape to make new progress only by recognizing that biological events are essentially teleological. In insisting on the teleological or goal-seeking character of biological events, I do not mean that they are teleological in the sense in which Paley regarded a timepiece as teleological, the sense in which every man-made machine is teleological, but rather in the sense that in the living organism events occur according to that order which we apprehend most clearly in our own mental activities. In other words, in all living organisms something of the nature of Mind is immanent; our own mental activity is the highest expression directly revealed to us of a mode of activity which pervades all levels of the realm of life in their various degree.

I have already suggested that, when the theory that man is a machine and nothing more is successfully propagated throughout the mass of a people, we must expect disastrous results. Such a belief cannot fail to weaken, if not to abolish, the sense of individual responsibility, to spread abroad a sense of the futility of all higher forms of effort, to make the enjoyment of the pleasures of sense seem the only acceptable philosophy of conduct; in short, to engender a moral materialism. It remains to point to some of the deductions from the machine theory and to their influence upon our social problems and activities.

Behaviorism, as taught in a large proportion of American colleges and as represented by Dr. J. B. Watson and his many followers, is not content to figure as an abstract scientific doctrine. Rather, it draws its practical deductions and actively urges them upon a credulous public. I will refer only to three of the many spheres in which its influence is already great.

It openly and confidently treats all religion as mere illusion and superstition surviving from the prescientific age, and seeks to close the door to all further thought or inquiry in that direction.

In the sphere of domestic life its deductions are boldly applied. And here it does not hesitate to take over from the utterly incompatible teachings of the Freudian school whatever is most disturbing and destructive to traditional belief and practice. Tradition holds that the monogamic family is the foundation of the State and the institution most necessary and conducive to human welfare, happiness, and progress. Behaviorism attacks it at every point. The relations between man and woman it would reduce to nothing more than one means for securing sensual gratifications; and those relations between the sexes are best which will produce the maximum amount of such gratification. Romantic love, marital fidelity, and pre-marital chastity for either sex, all these become absurd and pernicious survivals. Watson has foretold that within fifty years marriage will have ceased to be an American institution; and there can be little doubt that if his theory of human nature could be shown to be true, or if, in spite of its falsity, it should continue to spread as it has spread in the last decade, his forecast will be realized.

Some of those who, like Mr. and Mrs. Bertrand Russell, advocate complete sexual license, still regard the cohesion of man and wife as desirable in the interests of their children, or rather of the children born by the woman. But Watson will sanction no such old-fashioned nonsense. He has taken over from Freud the most regrettable and fallacious parts of his teaching, the theory of the *Œdipus complex*, and the dogma that all affection is a sexual manifestation; and he gives to these dogmas the peculiarly objectionable twist that the affection of a child can only be gained by stimulation of its sexual nature. For these and other reasons he regards the influence of parents and especially of the mother as peculiarly and inevitably pernicious to the child; and seems to hope to see all children brought up in State-supported behaviorist laboratories. Thus the American child, who too often is already, through lack of wise parental care and companionship, a hard self-seeking individualist, is in danger of being made into a ruthless savage wholly given up to the pursuit of material goods and pleasurable excitements.

Finally, the teaching that the feelings and emotions are utterly negligible cannot fail to have a brutalizing effect. It is notorious that in some of the European countries such teaching in regard to animals has made the people utterly callous to the sufferings of animals. Behaviorism confronts a more difficult task when it attempts to eradicate all kindly sympathy from American minds; yet, in proportion to its prevalence, it will not wholly fail of its natural effect in this direction. In short, it is both a product and a prime agency of that mechanization of human life which all Europe recognizes and dreads as of the essence of Americanization. "The next move in the advance of our civilization," writes the English author of a recent book,[4] "must be a campaign against the mechanization of life. . . . We are confronted by the possibility of a wilderness of Babbits, of a horrible, soulless, monotonous, factory and Ford-made existence, which will result in the decay of all the ripest fruit of Western civilization. . . . An urgent task of the present is to mobilize women for the war against the typification and depersonalization of life. . . . The main current of modern life sweeps our young womanhood with it into a vast mechanism of soulless, impersonal relationships. . . . The modern educational system has allowed itself, most deplorably, to become to a large extent a feeding pipe for this machine." But how can an educational system which explicitly founds its teaching on the dogma that men and women are machines do other than accentuate the present deplorable tendency?

I have assigned a large part of the responsibility for the present state of affairs to Teachers' College, that large department of Columbia University which annually launches many hundreds of teachers upon their careers. It is commonly said that Teachers' College is Professors Thorndike and Dewey. Does then Dr. John Dewey, America's most distinguished and influential philosopher, aid and abet the propagation of the materialistic doctrine we have examined? In theory no, in practice yes. He has written a psychology in which the keynote is *habit.* He writes: "All virtues and vices are habits. . . . Habits . . . constitute the self. In any intelligible sense of the word 'will,' they *are* will. . . . Character is the interpenetration of habits." Of thinking itself he writes: "If it is not a part of ordinary habits, then it is a separate habit. . . . For practical purposes morals mean customs, folkways, established collective habits. . . . Yet all habit involves mechanization. . . . All life operates through a mechanism. . . . And to understand the existence of organized ways or habits we surely need to go to physics, chemistry, and physiology rather than to psychology." Now Dewey does not say that life and mind are mechanism. He says that "All life operates *through* mechanism," and that habits "may have the support of a foreseeing and contriving intelligence," and he writes of "intelligently controlled habits" and of "creative invention."

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[4] "Woman and Society," by Meyrick Booth. London, 1923.

But the average student, trained to accept uncritically the *sarbon* theory and the dogma that man is a machine, believes he knows very well what a habit is—namely, the expression of a *sarbon* acquired by a truly random process. He notes Dewey's statement that, in order to understand habit, we must go to physics and chemistry. And all Dewey's qualifying statements, which leave intelligence as a creative power quite other than an array of mechanized habits, go for nothing. He feels that Dewey's psychology of habit makes of human nature a mere bundle of habits and that, therefore, the mechanical theory which so conveniently solves all his problems has the countenance and support of this distinguished thinker.

There is another outstanding figure among the psychologists of New York: Dr. R. S. Woodworth, head of the department of psychology in Columbia University. He is universally esteemed as a wise teacher and a true scientist. His "Psychology" is, I believe, more widely used as a textbook than any other. On which side in this great controversy is his influence thrown? An examination of this "Psychology" can only leave one in doubt. It shows that Woodworth is a middle-of-the-road man. It is true that he repudiates as inadequate the absurd *sarbon* theory. But in every chapter he seems to be saying: "Come, we are all good fellows. Let us have no unseemly disputes. You are right and he is right, and all of us are quite correct. Go to—make more experiments and don't trouble yourselves about deep problems." This policy of avoiding troublesome items, of smoothing over deep-lying differences of theory, may, perhaps, be justified in a book designed for instruction of young students; though for my part I am convinced that the contrary policy, that of sharpening and defining all questions in dispute, is far more stimulating to young minds, and therefore to be preferred. Let us turn to a more technical exposition of Woodworth's position, such as we find in his essay in *Psychologies of 1925*. Here Woodworth appears as the exponent of *dynamic psychology*. He rightly insists upon the activity involved in all mental life, not only in processes that involve explicit voluntary effort, but also in all processes of perceiving, of remembering, of imagining, activity which determines the form of the response made by the organism to any stimulus. He recognizes that such activity is purposive and must be studied not only objectively but also by introspective observation. "Purpose is a real fact in human life, and, if not purpose, at least striving toward a goal is a real fact of animal life as well. . . . Purpose is one of the phenomena which psychology must include in its story." Does, then, Woodworth here figure as an opponent of the mechanical psychology? Not at all. As in his other writings, he sits upon every fence, refusing always to come down even tentatively upon either side. Yet it may fairly be said that he preserves his precarious balance by keeping one foot on the ground on the mechanistic side. He nowhere ventures a word against the mechanical psychology, and is manifestly fearful lest in recognizing the purposive nature of human and animal activity he may lose his reputation as a strictly scientific psychologist. The problem of purposive action he turns over to philosophy, that of vitalism he assigns to cellular physiology, and, as a psychologist, he wipes his hands of all responsibility for these troublesome problems. He steadily refuses to give his readers a lead. There is nothing in Woodworth's writings to counteract the dogma so confidently taught by his colleagues, the dogma that man is a machine and nothing more; for him purposive action is a sequence of mechanistic causes and effects.

I venture to predict that, unless the psychologists of America can find the courage to bring their teaching into line with common sense and sound philosophy, their science will not long retain the popularity which it now enjoys in the universities. The good sense of the university will rebel against a science which imposes annually on thousands of young students a view of a man which denies him all moral responsibility and represents all moral efforts as an exploded superstition that ranks with belief in lucky numbers and black magic. And the powers that control the financial bases of higher education will not continue to dispense large sums for the support of a science that produces no results of social value other than mental tests. The change I predict is already taking place in Germany. There the academic psychologists have long taught in the main a mechanical psychology; and the social sciences have waited in vain for the psychology that shall form their indispensable foundation. Such sciences as economics and politics, comparative religion, mythology, linguistics, æsthetics, have long been stagnant for lack of such a psychology: for a mechanical psychology that ignores the purposive nature of man, the teleological nature of all his activities, is utterly incapable of serving as their foundation. This need, long urgent, has now become a consciously felt want and an explicit demand on the part of the workers in the social sciences; and, since the academic psychologists still are slow to respond, representatives of the social sciences have begun to supply their own need. They put aside the strictly useless mechanical psychology as natural-science psychology and are proceeding to construct the kind of psychology they need, proposing to distinguish it from the other kind by dubbing it "*geisteswissen-Schaftlich*" psychology (psychology of the sciences of the human spirit). This is a makeshift and unfortunate expedient; a second best way of meeting the difficulty, of extricating psychology from the mechanistic blind alley. It can be avoided in America only by the franker recognition of psychology (or better still of biology as a whole) as an autonomous science which, instead of continuing slavishly and timidly to copy the physical sciences, must boldly exercise its unquestionable right to formulate its own working theories and fundamental postulates.

May the day soon come when American psychologists will recognize their right and their duty and will dismiss to the museum of scientific curiosities behaviorism, sarbons, atoms of consciousness, and all the useless jargon of the mechanical psychology.

I have assigned a certain responsibility in this matter to the city of New York. This assignment is justified primarily because the teaching I criticize has emanated chiefly from the halls of learning of that city and especially from Columbia University, where the former head of the department of psychology, Dr. McKeen Cattell (who may claim to be the spiritual begetter of Thorndike and Watson), set that department upon the narrow and "strictly scientific" lines which have led to such deplorable results. But the responsibility lies more widely. New York is the financial and intellectual metropolis of the nation, and whatever comes out of New York enjoys an immense prestige. The city is also the great publishing center of America. Among the many New Yorkers active in the output of intellectual wares there prevails a sort of freemasonry—the tendency to reciprocal boosting that is expected of all good citizens of every American city. And this tendency has boosted the materialistic doctrine of human nature. It is *chic*, it is New Yorkish, to speak well of Behaviorism and to imply familiarity with the most esoteric Freudian doctrines, while treating all other psychology with silent contempt. Hence no self-respecting New York publicist can refer to problems of human nature without at least a pat on the back to Behaviorism and all its implications. And all this produces throughout the country an immense total effect. When the poor teacher in the backwoods of Michigan or Carolina reads in a great New York daily that a certain book makes an intellectual epoch, how shall he fail to bow down in abject submission? How shall he sustain his own independent judgment to the effect that said book is less than worthless? A plausible farrago of well-founded statements and half-valued theories, the admixture of truth being just sufficient to persuade the simple-minded to swallow the whole bolus?

II

BEHAVIORISM AND BEHAVIOR

BY CHARLES C. JOSEY

It has been made clear in the foregoing chapters that the writers of this book are not interested in Behaviorism in its broad meaning, which would embrace all of psychology; but in Behaviorism in its technical meaning, which holds that the only legitimate data of psychology are those things which can be seen or heard, or, better yet, only those things that can be recorded by an instrument. Since such states or attitudes as love, hate, fear, courage, pain, hope, loyalty, and aspiration cannot be so recorded, they are regarded by the Behaviorist as of no consequence. A spark of liberality might have caused him to admit that these attitudes are at least legitimate and interesting inferences, but his dogmatism regarding those things that can be "scientifically" studied has prevented this. Of all fundamentalists, the Behaviorist is the most narrow. He is not content to show that those things which can be recorded by an instrument are fundamental to his science, but insists that they are the only things of any consequence to the psychologist.

This extreme position is defended by the protagonists of Behaviorism on the ground that it increases the practical value of psychology. It is this claim that

I wish to examine. Now any practical system of psychology should meet at least some of the following requirements: It should make possible greater accuracy in the prediction and control of behavior; it should be helpful in the task of the moral elevation of man; it should deepen our appreciation of human nature; and it should increase our understanding of human nature. A discussion of Behaviorism in the light of the last requirement would lead to a consideration of its theoretical difficulties; and as these have been dealt with elsewhere, we shall limit ourselves to a consideration of "Behaviorism" in the light of the other requirements of a practical psychology.

Any consideration of this kind must be based on some system of psychology which serves as a basis of criticism. I shall therefore point out the psychological principles that guide me in my thinking about the practical consequences of "Behaviorism."

Any act of a human being, whether it be talking, walking, thinking, or fighting, is a product of the whole situation in which it occurs. Strictly speaking, there is only one whole—namely, the totality of being; but for practical purposes we isolate wholes of varying degrees of completeness, and these meet our requirements very satisfactorily. As a simple illustration let us consider walking. I cannot explain an act of walking without taking into consideration the structure of the organism that walks and its motives. But equally true is it that I cannot account for an act of walking without taking into consideration the nature of the world in which walking occurs. If we lived in water, we would not walk, and if we lived on a perfectly smooth surface, we might slide along instead of walking. In order to account for walking, therefore, I must take into consideration not only the nature of the walker but of the surrounding world as well. Our emotional responses and thought processes must be accounted for similarly.

When Sleeping Beauty was awakened by the kiss of the prince, love was created. That love must be regarded as a product of all the relevant factors, which we may for convenience call the psychological situation. But for the nature of the maid love would not have arisen. Equally true is it that but for the nature of the prince no love would have arisen. Thinking furnishes numerous illustrations of this principle. Thinking is born when a person with the proper training and nature is brought face to face with a problem. Both the thinker and the nature of the confronting difficulty must be considered before the act of thought can be understood. Take a public speaker for example. His thought processes must be understood not merely in terms of his interest and experience, but also in terms of the attitudes and values of his audience. Teachers make constant use of this principle. Before they can get their pupils to work to the greatest advantage they must first arrange the situation so that an interest in mastering the task will be created. In other words the psychological whole must be made such that out of it interest arises.

The concept of the psychological whole is valuable in directing our attention to the essential conditions for all human activity—namely, a self, which is a functional system in a larger functional whole. This concept emphasizes the functional unity of the whole, and therefore enables us to proceed with our work of analyzing it with less danger of over-simplification. Accordingly we break up for the sake of exposition the psychological whole into its two most obvious parts, the self and its environment. We are then prepared to proceed with the analysis by seeking those characteristerics of the self that are significant for understanding its behavior. We do the same with reference to the environment.

In pointing out some of the traits of the self that are significant for our understanding of its behavior, it should hardly be necessary to add that these traits are symptoms or revelations of the nature of the self as a whole. Yet at the same time these traits go to make up the nature of the self. This is true of all organic unities. To illustrate, the soundness of my heart is in no small degree a sympton of my general physical condition. But the soundness of my heart plays no unimportant part in determining my general health. So it is with my mental states. These are expressions or revelations of my personality, but they in turn are important determinants of my personality. For example, my ideal of honesty is a reflection or outgrowth of my personality; but it in turn plays an important part in making my personality what it is, and any important change in it will have an important influence on my personality.

Any list of the aspects of the self, important for understanding and predicting its behavior, should include the following: attitudes, beliefs, and evaluation of human nature. In everyday life we recognize the importance of the foregoing traits, and any system of psychology that neglects them fails to make full use of the resources at hand. There are some who minimize the importance of these traits on the ground that they are rooted in our affective nature and on the ground that our conduct is frequently inconsistent with them. That beliefs, attitudes, and evaluation are rooted in our affective nature does not show that they are unimportant. They, like all traits of an organic unity, grow out of the whole, but they are none the less important determinants of the whole. That we should frequently act inconsistently with them is not surprising. No one claims that they are the sole determinants of behavior, but they are notwithstanding important phases of one's personality and are frequently the most important factors for the understanding of an act. For example, the belief that one's life is threatened may be the most important factor in making intelligible a crime. The belief that animals are soulless machines may serve to excuse and therefore to increase the cruelty shown them. The boy who has a reputation usually seeks to live up to his reputation whether it be good or bad. A member of a prominent and successful family is likely to place a valuation on himself that influences his conduct both desirably and undesirably. Where two different races live together, the belief that one is superior plays an important part in determining how they shall live together.

Similarly our beliefs about human nature and its place in the cosmos are important. It is not a matter of indifference whether we believe that we are revelations of the purposive nature of reality or that we are the accidental products of an indifferent cosmos. It is not a matter of indifference whether we believe that man is merely a complicated machine whose behavior can be accounted for in terms of physics and chemistry or that man is a being with aims and purposes, and that he is at least in part responsible for their realization. In brief it is not a matter of indifference whether we have a view of human nature that exalts it or a view that minimizes its richness through reducing it to the level of unorganized matter.

In the light of the foregoing let us seek to discover how well "Behaviorism" meets the requirements of a practical psychology. Do the principles of "Behaviorism" enable us to predict behavior? Our answer is, No. The reason for this answer is that the "Behaviorist" takes too limited a view of the psychological whole in which the act takes place. Limiting himself to those things that can be recorded by an instrument, he is unable to take into consideration the hopes and fears, the aspirations and worries, the beliefs and attitudes of the agent, all of which are of value in enabling us to predict the behavior of others and to anticipate our own. Their importance can be best shown by means of illustrations.

Four men were riding in an open car. One of the men on the front seat was chewing tobacco and frequently spitting. Frequently some of the spittle and tobacco juice flew into the face of one of the men in the rear seat, who did nothing more than wipe his face as the need arose. After some little time had passed the man who was chewing got out, but another man who happened to be chewing took his place. He too, like all tobacco chewers, had to spit. The first time he spit some of the spittle flew into the face of the man in the rear seat. This time, however, instead of merely wiping his face, he flew into a rage and threatened with a curse the man in the front seat.

How understand the behavior of the man in the rear seat? Why did he not resent the thoughtlessness of the first man? And why did he resent so violently the thoughtlessness of the second man? His behavior becomes more intelligible to us when we learn something of his interests. He was desirous of becoming county treasurer, and the first man who was chewing was the political boss of the county. For fear of offending him he said nothing. Now if he had told us in advance of his interest, and if we had known of the influence of the other man, we could have predicted with some assurance that he would not show in a violent manner his resentment regarding the behavior of the county boss. We could not have predicted just what he would have done, but we would at least have had information of value in any effort to predict.

Likewise with the explosion that followed the spitting of the second man. Perhaps delicate instruments would have enabled us to discover that the man was on the verge of exploding, and that only the last straw was needed. But the same could have been discovered without the instruments. He might have told us how he felt, or we might have inferred how he felt on the basis of our general knowledge of human nature, gotten both by studying the behavior of others and our own feelings. And this information would have been of great help to us in predicting that anything else that did injury to his feelings of self-respect would bring about a violent reaction. An account of his mental states would have served to make his behavior more intelligible, and information regarding them, whether gotten from the introspection of the agent or from our inferences, would have been valuable in enabling us to make predictions.

Another illustration will make this clearer. Here is a freshman seeking advice from a member of the registration committee. How can the man give him advice? Certainly before he can do so he must know something about the interest and ability of the freshman. These are inferred from knowledge of the freshman's past. Now there are at least two ways of learning of the past of another. One is through the records that have been kept regarding him, the testimony of others, and our own observations. The other is through the recollections of the person concerned. The former may be more accurate, but that does not justify us in discarding the latter method. Indeed, any knowledge that we may get from the former method needs to be supplemented by the recollections of the person in order that we may learn how that past appears to him, the importance that he attaches to different bits of it, and the way he feels concerning the whole. Accordingly the member of the registration committee rightly attaches much importance to the recollections of the freshman regarding his past.

The "Behaviorist," however, insists that the only things of importance in determining behavior are those things that can be objectively discovered. ✓In so doing, it follows from what has been said, he deprives himself of information valuable both for understanding and predicting behavior. The more orthodox psychologist, unlike the "Behaviorist," brings to bear all that he is able to learn about a given individual in all possible ways, and on the basis of this wider fund of knowledge attempts to interpret and anticipate the behavior of others. In this effort to discover the character traits of a given individual he makes use of tests and all means that promise to be of help. It should be obvious that the more we know of a person the greater the chance of understanding and predicting his behavior. Clearly then, to put it mildly, "Behaviorism" has not increased our ability to predict behavior.

The "Behaviorist" makes much of the claim that his principles enable us to control behavior and the development of character. This claim is not substantiated by the experience of those who are seriously interested in the formation of character. Any intelligent parent soon discovers that if he wishes to control the behavior of his children he must first learn of their desires, fears, worries, and ambitions. What is true of parents is equally true of teachers in maintaining discipline, of psychopathologists in helping their patients to take a firmer hold on life, of social workers dealing with delinquents, of orators in influencing their audiences, of salesmen in selling their wares. In short, all who try to influence or control the behavior of others find that a most valuable aid is a knowledge of their anxieties, desires, ambitions, and prejudices. For example, here is a boy who begins with zest the tasks assigned him in school. But after a short effort he abandons the task and openly shows his indifference to the whole procedure. A study of that child showed that he took pride in his reputation for having a good mind, and that in order to keep his reputation he was unwilling to appear to undertake anything which he could not do well. Hence the first difficuty that arose was sufficient to cause him not only to cease all effort but to make light of the task and to pretend to be indifferent. With this knowledge of the subjective states gotten in part from the accounts of the child, the teacher was able to deal with the situation more effectively than she otherwise would have been. Yet the "Behaviorist," as a result of his scorn for all subjective states and of his blind worship of the stimulus, would deprive us of all these avenues of insight and control.

Our third requirement of a practical psychology is that it help in the moral elevation of human living. We are convinced that in this respect "Behaviorism" falls short. It is hard to say what view of human nature is generally accepted, but perhaps most people attach considerable importance to the aspirations, hopes, and fears of man, and regard human nature as endowed with a measure of spontaneity and freedom of choice. According to the "Behaviorist" these are at best mere epiphenomena; they are similar to the creaking of the wheel on its axle. In themselves they have no more to do with conduct than the shadow of a runner influences his speed. The real determinants of behavior, according to the "Behaviorist," are the structure of the organism and the forces that play upon it. No room is provided for spiritual values.

That the effect of such a view of human behavior would not be elevating seems obvious. Certainly there is nothing in it to make for the moral heroism of such men as Savonarola or Socrates. We need not say that the beliefs of these men made them moral heroes. Many who have held similar beliefs have not impressed us with their heroism. But none the less their beliefs when seen on the background of a more complete biography stand out as important determinants of their behavior.

There is little value in pointing to a man here and there who avows the principles of "Behaviorism" and who is none the less an ideal person. His character and ideals have been molded to a considerable degree by a group that insists on the spiritual nature of man and on the moral significance of man's efforts. He is the beneficiary of a spiritualistic philosophy of life whether he consciously accepts it or not. But change the prevailing philosophy into a materialistic or mechanistic one, and what will be the effect? Is it not more than possible that the shift in this direction in our high schools and colleges, in the popular articles on science, and in many novels is in part responsible for the increasing number of young criminals and for the feeling of futility that seems to characterize many?

Most of us have been reared in an atmosphere that stressed individual responsibility; it was impressed upon us that the making of our character and our future is our task, and we were given a cosmic view that stimulated our moral efforts. But the tendency of "Behaviorism" is to undermine each of these props of morality. It would teach the individual that he is not responsibile for his conduct. If he acts criminally or in less anti-social ways, his heredity or early home life is blamed, not he. Since man's inner life has always been the citadel of the spiritual, the robbing it of all spiritual significance tends to leave us in a world indifferent to man's values and moral struggles. This cannot but influence human living.

That the acceptance of "Behaviorism" would seriously influence the behavior of the mature adult is to be doubted. In the development of a personality there is a shift in the relative importance of the different character traits. Tastes become fixed, habits are strongly established, and many social bonds entwine the individual. These bind the individual to courses of conduct that are familiar and tried. But it does not follow from the admission that the behavior of an adult would not be seriously influenced by a change in his conceptions of human nature, that the behavior of an immature person would not be; nor does it follow that the *zest of life* would remain the same for the adult. The influence of a system of thought on the zest of life is a matter of utmost practical importance. What influence would the acceptance of the principles of "Behaviorism" have on our evaluation of an act and on human life?

Valuation while affective depends to no small degree on the meaning we can see or weave about the object concerned. Consider for example an old lady knitting in order to escape the boredom of doing nothing. War begins, and there is a great need for knitted sweaters and socks. Now she knits not merely with contentment but with zest; her whole life becomes richer and fuller because what she is doing now has some value. The same principle holds for all activities and proposed careers. Here is a young man preparing to become a physician. He is intelligent and applies himself, but all the time he labors under misgivings. Suddenly he gets a new appreciation of the profession for which he is preparing himself. He no longer sees it as a life of drudgery devoted to the care of people suffering from loathsome diseases, or of discontented people carrying continually their troubles to the physician. He now sees it as an opportunity to alleviate the suffering of humanity, to keep the joy of living strong in young children, and to make healthier men and women. So viewed, his profession, instead of something to which he looks forward with dread, becomes something which elevates his own life and adds to its zest and meaning.

It is the same with our view of conduct. If all I see in the behavior of an individual is a response to a stimulus of the same type as my response to dust in my throat, I have a view of life which lessens my appreciation of kindliness, love, and aspiration. How greatly my admiration of a person who apparently makes a sacrifice for another, even at the price of his life, would be dimmed I do not know. But that it would be affected I cannot doubt. My view of human nature would tend to cause me to view it as nothing more commendable than the flying of the moth into the flame. Our valuations are easily upset. A chance remark may rob us of the joy we had formerly gotten from a choice possession. Our interpretation of the source or cause of long tapering fingers may influence our æsthetic judgment concerning them. Likewise to reduce human behavior to the level of that of unorganized matter does much to rob it of its significance and to lessen our appreciation of it.

Epictetus is reported to have said that everything has two handles. We now have before us two handles either of which we may take hold of in our effort to understand human nature. One stresses the differences between man, the lower organisms, and unorganizing matter. This view stresses man's capacity for love, devotion, friendship, loyalty. These and similar traits it regards as the distinguishing traits of man. This handle leads to an increased appreciation of the noble and spiritual in man. The other stresses the similarities between man and the rest of reality. It irons out the differences between man and the lower orders of being, and in thus doing it tends to deprive us of much of the happiness and zest of life that comes from attaching due importance to man's spiritual nature.

Our view of life and of the universe therefore is not a matter of theoretical importance only. Such views profoundly influence our values and appreciations. They may add to the richness and fullness of experience, or they may lessen these by ironing out all differences between the high and low, leaving us in a homogeneous though drab and colorless world. In this respect "Behaviorism" falls far short as it does in the more truly scientific interest of enabling us to predict, control, and understand behavior.

III

METHOD IN PSYCHOLOGY AND BEHAVIORISM

BY A. W. CENTNER

THERE is no more potent word in the polite vocabulary of the average man than "science" and "scientific." "Logic" and "logical" are somewhat suspect as being devoid of any real content, and "metaphysic" and "metaphysical" have become a scandal to the scientific mind of our day. While science is the great solvent of all hesitation and ignorance, the latter have become words of opprobrium like "theology" and "medieval." They are words expressive of scorn. The Behaviorists, notably Watson, take full advantage of their implications in the popular mind, and they use them as the "heavies" against the positions of experimental psychology. "Medieval Tradition Has Kept Psychology from Becoming a Science," "Its Subject Matter Not Objective," "Introspection a Serious Bar to Progress," "Introspective Psychology No Longer Serviceable," etc., are some of the devastating headings of the opening chapters of Watson's "Psychology." We are just about to give up the hope of ever having any psychology left when the relief and assurance come in a new heading: "Behaviorism—the Natural Science Approach to Psychology." Things are not so desperate after all.

We propose, however, to look into the matter somewhat more closely, for we cannot afford to be misled again, as in the opinion of the Behaviorists we have been by experimental psychology for exactly fifty years.

"Science" and "scientific" figure most prominently in the indictment. What is science? Science may be defined as reasoned knowledge, or knowledge of things by their antecedents. We might also understand it to mean accurate knowledge based on unbiased study of facts. We might also say that it is a system of knowledge embracing facts and their underlying laws or causes. No matter how we conceive it, it will always have to include accurate knowledge of facts, knowledge so complete and reliable that we can formulate universal propositions about them which will make it possible to predict other facts of the same kind. Certain conditions being verified, we shall know what to expect. Another way of conceiving science is to say that it is rationalized experience, for all science includes a rational element so that there cannot be any wholly objective science. Mind and matter coöperate in making science: even Behaviorism was so made. When we speak of *Natural* Science we mean the science of a particular kind of facts, facts that can be observed objectively—*e. g.*, physics. In physics the conclusions reached after careful observation and experiment can be expressed in mathematical formulæ. This is also true of astronomy and chemistry and some other sciences. The mathematical formula is applicable, because of the quantitative aspect of their object. What is qualitative in anything cannot be measured. There are other sciences, such as the science of government, education, law, sociology, logic, etc., which include imponderable factors which can neither be observed objectively nor measured quantitatively, but they are sciences nevertheless, embracing as they do propositions of universal validity based on accurate knowledge of facts. By the same token experimental psychology is scientific. A scientific law expresses constant sequence of phenomena, and this can be established by introspection quite as well as by objective observation. The law of the differential threshold can be established in no other way, nor can the simple fact of a headache be observed in any other manner. There is no one general natural science; there are only sciences of particular classes of objects, and in *every case the nature of the object prescribes or limits the method to be used in its study.* No one method will suffice for all. The physical and the psychic realities require different methods, for the one can be observed externally, the other cannot. The consistent Behaviorist, conscious of the difference, quite paradoxically denies the existence of consciousness and makes his escape into physiology; the less consistent dismisses it as being beyond the reach of objective, and therefore scientific, inquiry. The lesson of Ptolemaic astronomy is lost on such as do not respect facts, for they stand at the beginning of all science. One embarrassing consequence of this attitude in psychology is that Behaviorism can predict nothing relative to human behavior, for behavior is intrinsically psychic. There is nothing specifically human about a simple reflex like the knee jerk, but the "conditioned reflex" most certainly involves the psychic, which is not objectively observable. Scientific psychology can never become a natural science.

The Behaviorists next make a great deal of "objective observation," as if it were alone scientific. This method limits us to the study of such phenomena as can be reached by the five senses. This method has been in vogue among men from the beginning. It was practiced most carefully by the ancient astronomers and philosophers, reduced to form by Aristotle; again, after a period of neglect emphasized by the Bacons, sharply and elaborately formulated anew by Mill and used ever since in the study of psychology. It happens to be the only approach we have to the life of the brute animals, as it is the only method possible in the study of physics and chemistry. The method, therefore, is not new; only the claim that it is the only proper method in psychology is new. Useful as it is, it is not an ideal. As said above, all science worthy of the name must start from facts. The concrete, inanimate world, mute as the proverbial stone, may be looked at and into, but it makes no soul-revealing confessions. It can be made to answer after a fashion in the carefully thought-out experiment, but only to an intellectually interpreting scientist. If we had facts only without interpretation, we could never have science. The scientific law is formulated by mind, and confirmed or vetoed by subsequent facts. We must get the facts the best way we can, by internal observation if necessary, by objective observation when possible, but in both cases the law is formulated by intellect or consciousness. It were much better if we could question nature and from her own lips get a truthful answer to our vexing questions. Many scientific theories, that have since slipped back into the history of errors, would never have been advanced if we had this direct communication with natural phenomena.

We again become painfully aware of the limitations of objective observation in the study of animal psychology. The animal is not mute, but it can give no articulate account of what is going on within it. There is some consciousness, as revealed by the actions of animals, but we can never be sure by external observation whether the animal feels pain, is delighted or depressed by its surroundings, etc. All this has to be inferred by analogy with our own conscious life. Even the method of introspection by which we are in direct touch with reality does not reveal all. We may be conscious of a desire or volition and conscious of its execution, but we never know, and the Behaviorist does not know, how a perception or a sensation is brought about, how it connects with motor nerves, how the impulse travels that finally innervates the muscle the contraction of which brings about an observable movement. Behaviorism is not ignorant of this, and some of its prophets took an almost disconcertingly new way out of the embarrassment by simply suppressing consciousness and all its works. Their chosen method limits them to the observation of muscular contraction and glandular secretion, and so, the new psychology ends up in physiology in spite of the protests that they wish to study the reactions of the organism as a whole. For it should not be forgotten that the reactions of the organism as a whole involve the "psychic" and are not objectively observable.

It will surely be freely admitted that the method of any science must be dictated by the facts to be studied. Astronomy has its method, geology has another, biology still another, etc. But what scientific ground is there for applying the method that is well adapted to one aspect of reality to the study of all? Wherein does the superiority of the physiological method consist that it is asked to do what it cannot do? As a matter of fact it can never reach the specifically psychic, which is also and principally the object of psychology. If it is an illusion to hope to explain life in terms of mechanics, it is another to identify the psychic with the physiological. The simple assertion that the psychic is another neural process has no standing in science. It is plain philosophy. Modern psychology rightly found fault with the old deductive methods which put conclusions in the place of facts. To-day no reputable psychologist would start with a soul gotten somewhere, legitimately or illegitimately, dissect it into faculties and potentialities, define it as substance or phenomenon, or deny its existence altogether, before the facts sufficient to warrant a scientific conclusion are in. Compiling ecclesiastics who have interests foreign to psychology sometimes still do this. Behaviorists are equally unscientific when they arbitrarily impose a limitation of method. To lay down a method dictated by a philosophy is to turn the world of science topsy-turvy. Materialism is a philosophy just as Spiritualism is; neither has a right to prejudge the conclusions which must be obtained from the study of facts.

✓ We do not mean to exclude the method of objective observation; we object to its haughty exclusiveness. As a matter of fact, external observation, with all its quantitative measurements, has been in use and abuse for almost a century—from the time of Weber, who established laws of the differential threshold, which, by and large, are still correct to the determination of glandular secretion by the Behaviorists. Fechner, a Behaviorist born out of time, tried to measure the immeasurable, and his law became a poor guess involving patent impossibilities. Behaviorism now suppresses altogether the immeasurable, a somewhat more radical procedure, but not any more scientific.

Modern scientific psychology recognizes the fact that external observation can tell us nothing about the specifically human which is bound up with consciousness. Without introducing any metaphysical theories regarding the nature of consciousness—to wit, whether it be a phenomenal stream of states self-supported as it were, or whether for its adequate explanation a substantial soul is required—we must admit the *fact of its reality.* And we must by the necessities of the case content ourselves with internal observation; it cannot be approached in any other way. We call this the method of introspection. It is the most immediate way known to us to reach any reality. We are far more immediately aware of our states of consciousness than we are of external reality, because we get in touch with objects only in so far as they are known in consciousness. There is no observation of any kind, no measurement of any objective reality, no control of any one's observation save through consciousness. And, to find out what we are conscious of, we must introspect.

Introspection, according to Comte—the patron saint of Behaviorism—involves impossibilities. It is, according to him, impossible to introspect a psychic act, because it is gone when the act of introspection is to take place. Such a thing is, of course, impossible, but Comte fitted the case to his criticism. The real truth is that no psychic phenomenon disappears immediately. There is the well-established fact of persistence or immediate memory (no scientific law of any kind has ever been formulated without it) which permits us to direct attention to a recent experience. If there were no persistence in consciousness of psychic phenomena, we could not formulate a simple judgment, for the subject would have disappeared by the time we reached the predicate. In the same way we would never be able to answer a question with a simple yes or no, if the question asked were not before consciousness at the time we give the answer. It also follows that we could not know what we are thinking or talking about, and yet it is universal experience that we are concomitantly aware of a multiplicity of phenomena such as the words we are using, their meaning, our intention in speaking the particular word, the reaction of the person spoken to, that we are speaking and experiencing feelings or affective states, etc. Brute animals apparently do not introspect; that is why they have no language, no literature, no religion, no civilization. If they suffer pain, they do not tell us about it. If they have experiences similar to our own, we shall never know, except indirectly, because the method of external observation does not reach them.

It follows from this that the method advocated by the Behaviorists is not adequate even for animal psychology. And in truth, whatever we attribute to animals that is strictly psychic, such as pain, pleasure, sensation, memory, we would never suspect were it not for our own reactions to similar stimuli. Having a similar nervous system, we infer by analogy that they have similar experiences. We may not reach absolute certainty regarding their "psyche," but it is an advance over the objective method, for with it alone we can make out nothing at all.

Speaking more generally, introspection is the *sine qua non*, not only in psychology, but in every science operating with the inductive methods. There are scientific laws, generalizations upon which we predict future events, future behavior. The laws of Behaviorism, if there be any, are also such. They are conscious formulations following upon the observation of external objects and events, that have entered the consciousness of the scientist, are communicated by means of accepted symbols or language to other scientists, are checked and finally accepted. The chronoscope mechanically ticks off the fractions of a second, the scale weighs the amount of glandular secretion, but the measurements must become conscious to the observer, to be analyzed and interpreted. The result is a law. The finest instrument ever built has never written a scientific law. And there is probably not a single scientifically accurate law, just because of the human element that enters the observation of the registrations of the man-made instruments. Bessel's "personal equation" in the observation of the transit of stars which affects the accuracy of the time of transit is only one illustration of the relativity and inexactness introduced into scientific methods by the human element.

This fact, ignored apparently by the Behaviorists, put experimental psychology on guard. For it, too, operates with methods of observation, both internal and external, and it had to balance out or eliminate the defects of individual observation wherever possible. This became the more imperative because the objects studied are not such as can be grasped with the hand or seen with the eye. The experience it studies is of a specific nature, such as sensations, thoughts, volitions, feelings, etc., which are recalcitrant to quantitative measurement. It is experience that can only be "lived," which is therefore not less, but more, real. But what we live is always individual and personal, and the language of everyday life in which we describe our experiences is sometimes inexact, although exact enough for the rough purposes of practical life. Accurate statement of such experience demands careful, conscientious analysis. "One is supposed to need several years' training in a psychological laboratory in the observation of the kaleidoscopic changes that go on every moment in states of consciousness before one's introspection takes on a scientific character."[1] This is true. But the same is true of all scientific observation. Observation can be learned like anything else, and practice and patience lead to grater proficiency. It matters very much *who* makes a scientific observation, as we saw recently in the transmutation of mercury into gold. The irony does not lie in Watson's remark, but in the fact that Mohammed must go to the mountain; we must all come to it willy-nilly, for introspection is the only method of knowing anything. When two Behaviorists compare notes they communicate to each other the contents of their respective consciousnesses, they introspect according to the ancient and accepted methods of experimental psychology, and lack even a behavioristic standard by which it could be established that they agree absolutely. The degree of accuracy attained, while not absolute, is yet sufficient for life, because the living organism has this advantage over a machine, that it can adapt itself to small differences and inaccuracies—inaccuracies which we have to simply neglect in practical mechanics. Is not psychology to serve the purposes of life?

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[1] Watson, "Psychology."

We can well afford to be good Pragmatists in this matter and should not ask more of introspection than we do of external observation, so long as it leads to success. When an identical phenomenon has been observed thousands of times by thousands of trained observers, in a dozen laboratories operating with all the care humanly possible, and when a law—*e. g.*, of association or memory—has thus been verified, we have every reason to believe that we have discovered a constant sequence which will apply to all men wherever found. This is all any method can make out concerning the psychic; it is all that science requires. That the phenomenon should be externally observable and quantitatively measurable is an arbitrary imposition. To go so far as to hold out the hope of some day explaining consciousness in terms of protons and electrons or in terms of mass, rigidity, or any other non-psychic terms is on the face of it absurd. And it is just as absurd to identify the physiological accompaniments of an emotion—*e. g.*, with the emotion itself. Another generation in its philosophical spree used to believe that the composition of the Bible or of Dante's works could be accounted for by the accidental grouping of the proper letters of the alphabet under the guidance of Chance. Their descendants to-day believe life can be explained in terms of physics and chemistry. This belief is as absurd to-day as it was fifty years ago.

In conclusion we might be permitted to ask: What has Behaviorism observed? Muscular reactions and glandular secretions, observations made just as accurately in physiology. But it proposes to observe "the behavior of the organism as a whole." But behavior cannot be objectively observed. Behavior is infinitely more than muscular contraction. There are unobservable elements in it which only introspection can reveal: psychic factors such as purpose, intention, perception, memory, sensation, adaptation, feelings, etc. Experimental psychology before Behaviorism was well aware of the complexity of psychic behavior, and in order to get to the bottom of it, it proceeded on the well-known Cartesian rule to divide the complex problem into simpler ones. Muscular reaction is one of the simpler ones, but is not behavior. To date, it has not been possible to account for behavior in its totality, just as nobody has been able to explain a single life function completely. Loeb, a sort of father of Watson, spoke very much of tropisms. To explain the fact that a plant sends its roots into the earth by geotropism is just another way of saying that it sends them into the earth, but it is not an explanation. The real explanation will have to be discovered in the constitution of the plant, in the texture of life itself, and this objective observation cannot do. One cannot call the reaction to the tuck of a string in Punch and Judy behavior. We laugh at it because it dares to seem what it is not. We also laugh at the reactions of a drunkard because his reactions are so devoid of aim and purpose now that he can no longer control them. His is a de-humanized organism and simulates something other than itself. The futility of effort, the lack of coördination in the reaction of one who is not himself is funny. And, if all our behavior could be reduced to mechanical reaction to external stimulation we would form one vast Punch and Judy show without an audience to enjoy it. The very idea is funny. But Behaviorists are consistent. What is thought? It is speech manifested in muscular movement of the throat. Even silent thought is a phenomenon of muscular innervation so slight that it cannot be observed externally. One wonders how the Behaviorists who have given up consciousness can become conscious of a slight movement in the muscles of the throat.

The complexity of behavior is explained by the "conditioned reflex." There is nothing specifically behavioristic in the conditioned reflex. The name is new, but the thing, as usual, is as old as the hills. The fact that one stimulus may be substituted for another with which, in experience, it has been associated, was always known. But there is not any proof that there is a conditioned reflex outside association. There are simple reflexes, like the knee jerk, there are complex reflexes, like the cortical reflexes governing the adaptation of the eye, but there is no specificially conditioned reflex that is purely physiological. All the facts in Pavlov's salivation experiment, a fact noticed by every human being on himself who ever rubbed his stomach when he heard the dinner bell, can be explained adequately and simply by the well-known laws of association established by the old-line experimental psychology. It is there called redintegration. All substitutions of stimuli involve the psychic element. That is why, outside the realm of living things, the conditioned reflex has no being. It is not a mechanical, but a psychic phenomenon. It would be most thought provoking if a machine could learn to react to water as it does to gas, but it will not because it cannot adapt itself to its environment. In the plasticity of reaction to varying stimuli lies the sweet mystery of life. By it life phenomena and mechanical phenomena are separated so absolutely that one and the same explanation cannot suffice for both. The conditioned reflex is in all truth an insurmountable obstacle to mechanism in psychology: it escapes the method of external observation.

With consciousness given up and repudiated as hopelessly beyond the method of objective observation, with the conditioned reflex, the corner stone of Behaviorism reclaimed by experimental psychology as involving the psychic, with external observation bound up with introspection, and behavior something intricately complicated with psychic elements, one wonders just how scientific Behaviorism can be, and just what it might hope to contribute to what we know or can know by the methods of experimental psychology. It can contribute whatever it can reach by its method—viz., a more accurate knowledge of the physiological accompaniments of psychic states. For these, too, must be known before we can hope to have a complete psychology. But even then, if it is to become truly scientific, it will have to free itself from the dictation of a materialistic philosophy and allow the facts to point the way to an ultimate metaphysics with which they can live.

IV

METHODOLOGY AND PSYCHOLOGY[1]

BY HERBERT C. SANBORN

WHEN scientists of a certain type set out to confound the philosopher, they regularly take occasion to point to the conflict of systems as a sure proof that philosophy is after all only a matter of taste, about which in this enlightened twentieth century there surely ought no longer to be any disputing; *de philosophiis non est disputandum.* In recent years, however, the professional student of philosophy might not unnaturally feel the impulse to indulge in a forbidden *tu quoque*, since he finds the whole domain of science in an extraordinary ferment and uncertainty, in which not merely the atoms but all the principles of orthodox teaching are being bombarded.

In the field of physics Dingler finds that recently "every dissertation for the doctorate has brought forth a new system, whereas formerly the candidate for this degree contented himself with the investigation of some minor law,"[2] while another authority,

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[1] The writer is indebted to the editors of the *Philosophical Review* for permission to use here some material from a previous article with the same caption which appeared in that journal in January, 1928.

[2] Hugo Dingler: *Der Zusammenbruch der Wissenschaft* (Munich, 1926), p. 141. "Where," he continues, "was a criterion to be found in the midst of this ever-swelling inundation of possibilities? For

O. W. Richardson, declares that "the state of physics at the present time is not unlike the economic and political condition of the globe," with the laws of dynamics as formulated by Newton and his successors having only a restricted validity.[3] The situation in mathematics, astronomy, biology, and the social sciences is not very different, if we may rely on the reports of experts in these special fields; and the psychologies of 1929, judging from the discussions at the recent International Congress of Psychology, are not fewer in number than the "psychologies of 1925." So far as this field is concerned a recent writer even finds conditions so desperate that "the rival systems . . . are trying to decide which of them, f any, can swallow up all the rest,"[4] but he neglects to say anything about the all-important question of subsequent digestion and assimilation. From the

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an instant mathematics seemed to offer one last place of refuge; but this limb snapped off like all the others; and the flood of logical possibilities creeping higher and higher now threatens to swamp science completely. If we are to succeed in bringing this situation into clear consciousness, there can be no mincing: we must call a spade a spade and say in words hard as cannon balls that before us lies Chaos and the Deluge. In modern science, *as it is envisaged by its most prominent leaders* (no italics in original), there is absolutely no firm resting place left. Every semblance of a foothold which the isolated specialist thought he had, proves to be an illusion, when we look the entire situation squarely in the face." Cf. also Dingler, *Physik und Hypothese* (Munich, 1920), pp. 172 ff.

[3] "Problems of Modern Science" (Henry Holt and Company, 1922), p. 79.

[4] G. E. Whitmore: "The Psychological Approach to Esthetics," *American Journal of Psychology*, January, 1927, p. 38.

critical point of view, however, it is not necessary to take matters so seriously as this in psychology or in any of the other sciences, since the underlying cause of dispute is probably an extra-scientific problem. Of course the right to say this depends in some measure upon what we may agree to designate as science proper.

Science, as I understand it, is a relatively objective, systematic way of handling reality, unprejudiced with respect to the metaphysical problem concerning the exact nature of that reality; but I do not see that it is necessary to limit the terms "science" and "objective" so as to make "science" and "natural science" synonymous, nor to add the usual insinuation that what is "nonscientific" is therefore false and illusory. It seems convenient and useful to regard "science" as a rather broader term than "natural science," even when the latter is taken broadly, and I think that "objective" means more than ordinarily seems to be implied in its use by many scientists. I hasten to add, however, that I think psychology, whatever else it may be, *is* indeed a natural science, or rather may be so treated advantageously from the point of view of methodology. Probably this once mooted question is no longer a matter of serious dispute.

Methodology in the sense implied is a theory of science which presupposes a theory of knowledge—that is, a theory of correct thinking or truthful judgment; it is concerned primarily not with the sort of operations peculiar to the special fields of science, but rather with the general presuppositions and assumptions that underlie all these special investigations. It is surely only a naïve misunderstanding of the actual situation which leads scientists at times to claim that science limits itself strictly to "pure facts" and "findings," undefiled by theory and metaphysics. There *are* no pure facts—that is, facts unrelated to theory; and to speak of confining oneself to "facts in their context," of beginning with a "minimum of metaphysics," of "sharply separating fact and value," etc., is usually to announce a preference for a given set of assumptions without argument. Moreover, the declaration of independence which assumes some mystical unexplained power in science for obtaining ultimate truth and for determining its methodology in the long run as a matter of scientific tradition must prove the theory of evolution upon which this argument rests; and that involves a resort to a theory of knowledge, whether we like it or not.

Every science, then, is a partial view of things which begins with presuppositions which it *quâ* science does not and cannot investigate, and ends with results that it cannot evaluate; by their very nature the sciences are abstract and hence dependent and problematical. Ignoring this relativity, however, and passing unwittingly from the field of science proper to that of a realistic philosophy by no means implied in his results, the scientist often comes to put forward his "findings" as absolutely valid knowledge. When, however, a special science does thus attempt to transcend itself and to claim universality, calling itself, let us say, a "glorified biology," I submit that we no longer have before us in such a transfiguration sober physics, biology, psychology, etc., but mathematicism, physicism, biologism, and the like, depending somewhat upon whichever science happens at the time to be in vogue; that is, we have those one-sided systems of philosophy which Bacon scorned as Idols of the Cave.

When, now, this occurs, it becomes necessary to point out that the results of such disciplines no longer possess their specific immunity to criticism. They become subject to metaphysical revision, which means of course that the discipline in question needs to have its attention called to the nature of the foundation upon which it has erected the superstructure. When philosophy exercises its right of eminent domain, the results of every science become common property and not any exclusive possession of the investigator in the field where they happen to have been unearthed. It seems that this still needs to be said, inasmuch as one of the commonest cases to-day of the *argumentum ad verecundiam* is the belief of many that a scientist, even a great scientist like Ernst Haeckel or Sir Oliver Lodge, is necessarily a competent, or indeed the most competent, philosopher.

Leaving, now, to ontology the problem of the nature of reality as one not essentially involved in the present chapter, we may raise the other question of the method of handling or controlling that reality—whatever its nature—which is especially distinctive of the natural sciences and thus of psychology when so treated. It is common to speak of this method as something essentially modern and hence true in contrast with all other methods, which, as mere survivals from primitive culture, are thereby discredited in advance; but it is obvious enough that we can find the germs of any method we might consider in the simple experiences of everyday life, even in the case of the primitive savage.

Primitive mentality may have been as decidedly lacking in analytical capacity as is maintained by those anthropologists who find that the savage does not even distinguish between subject and object, assimilating the latter to the former. Nevertheless, when primitive man was abroad in the forest and heard, let us say, the roar of a lion, he soon developed, I presume, through his experience with such phenomena, an ability to measure by ear in a rude way the intensity of the sound. On the basis of such estimates he doubtless determined approximately the distance between himself and the objects, governing his behavior accordingly; and he measured the sound perhaps quite as well as we ourselves can do to-day after ages of experience. In lifting and moving objects he also took their measure, just as in mortal combat he took the measure of his adversary. When he was able to secure leisure for reflection and probably at many other times he was probably as animistic as many of his modern critics allege; but we should not be led, through any tendency to over-simplification, to infer that this was his only mental attitude, or even that it colored all his reactions.

In these and many similar experiences that may suggest themselves to us, primitive man was concerned with quantitative science. He was measuring by mysterious undetachable tools not yet located by the anatomists; but at a later period he began to objectify certain others. He measured land, for example, by means of his foot until he finally detached this member and idealized it along with his detached digits, cubits, elbows, palms, etc. Finally he got the abstracting habit, and, in connection with the practical problems of surveying in the Nile basin, he detached several other tools from their contexts, developing still later the powerful instrument of geometry and other mathematics which made finer analyses and more exact estimates possible.

The main point of significance here is the fact that human interests are more exclusively practical the farther back we pursue them in their history, that science of all kinds had some sort of pragmatic origin and that some science has continued to remain more or less conscious of this pragmatic orientation, whatever else in the interim science may have become. This should not mean that there need be any such sharp line of demarcation between theoretical and practical science as has sometimes been alleged to exist, nor that merely practical science enjoys any especial superiority or respectability, except perhaps in provinces on the frontiers of civilization.

When we approach the world of so-called objective reality with the tool of mathematics and the aim of prediction, it seems that the possibility of doing this rests upon the practical assumption of a distinction between measuring and what is measured, and upon our discovering (or rather of *inventing*) units that on the one hand shall be sufficiently adequate to the subject-matter selected and on the other shall permit of being added and subtracted, whether or not we agree with Hobbes that such computation is the beginning and end of our syllogizing or thinking and that "matter" is the only possible or worthy object discourse.

Such assumptions are made tacitly every time we count a dozen eggs or apples for practical ends; but, strictly speaking, nobody has ever yet counted a dozen such objects, since, obviously, no two apples, not to mention a whole dozen, are nearly enough alike to be counted except with the usual "risks of reasoning." We attempt to remedy this state of affairs and succeed to a degree by weighing the objects in question, but anybody who thinks that he has ever bought or sold a pound or a kilo of anything is doubtless mistaken, and similar statements will hold for yards, meters, and the like. Without indulging in Einsteinism, it is doubtless true that nobody has ever observed these units (which we put into or feel into things, as we do "interest," "value" etc., when we *mind* them), even though he may have regarded with superstitious awe certain relics guarded in national shrines at standardized temperatures. We speak loosely of "repeatable experiments," but a momentary consideration of the materials and conditions involved makes us realize that there are no such things. All our concrete measuring is of this relative nature of course; but scientific computation may go on in abstraction and independence of these obvious facts until we arrive at a metamathematics that mistakes itself for absolute reality. Then it becomes necessary to remind ourselves that mathematics, physics, etc., are not any sort of independent realities or entities, but mental products possessing only subjective validity.

The so-called units we seek for our scientific technics must be "reasonably" fixed quantities, as colorless with respect to their quality as the square root of two, units that do not change on our hands as we manipulate them; and this means *a priori* a quantitative atomism of some kind, together with the assumed or deduced validity of the principle of inertia in some form.[5] It means, if we are strictly mechanical, an inert geometrical world, like that of Descartes and modern metamathematics, whether the world we are proceeding to calculate be thus inert or the contrary. If it actually be inert in its elements, with change merely a matter of permutation and combination, we shall perhaps solve our problems without a remainder; if it be fluid, then, in proportion as we pace the degree and complexity of the flux with the nimbleness of our calculus, we may hope to obtain approximations that will have a certain pragmatic validity, more especially in the field of simple selected problems such as are represented by the general field of physical science.

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[5] That is, the principal of inertia follows from the preliminary assumption of science that its object is an impersonal system.

Here where we are concerned, as Kant emphasized,[6] with motion in the abstract, problems work out (apart from exceptions which may be handled as methodological irrationals) with an exactness that has often been the envy of those sciences concerned with more complex aspects of reality; but in these sciences, too, from chemistry and biology to psychology and the social sciences, the aim in general may be the same. In case we treat the material from the point of view of practical science we are endeavoring not to discover the real nature of things but merely to reduce things to statistics and to invent units by means of which we may calculate and predict.[7] This is, indeed, the implicit aim of those special methods of observation and description, experimentation, introspection, etc., with which every science begins and beyond which some sciences have been able to make little advance.[8]

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[6] *Metaphysische Anfangsgründe der Naturwissenschaft*, Vorrede, 1 Hauptstück, Anmerkung 1.

[7] It is refreshing to find this point of view kept in mind in a scientific discussion like that of Bohr's "The Theory of Spectra and and Atomic Constitution" (p. 6) when he says: "We are therefore compelled to assume that the classical electrodynamics does not agree with reality, or, expressed more carefully, that it cannot be employed in calculations of the absorption and emission of radiation by the atom."

The difficulty of some sciences, notably psychology, arises chiefly from the failure of analysis to determine units adequate to the complexity of the problems involved; and then the natural but often mistaken tendency is toward a simplification that becomes extreme in the desire to approximate rapidly to the success of physics. It should, however, be recognized that physics renounces knowledge for the sake of practice and that its success is after all a limited practical success, due partly to assumptions like the staggering ones involved in mathematical astronomy, but chiefly to the fact that it *universalizes* its material at the very outset, leaving out of its problems about everything which we as psychologists would like to have explained. Blue, for example, may be perhaps an ultimate enigma for the psychologist; but the mystery of it is surely not entirely removed when a colleague assures him in effect that it is just like red, only more so.

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[8] The present Gestalt movement in psychology, and in the other sciences as well, represents in one of its aspects the search for a new sort of unit and might justify itself practically by the invention of special methods enabling us to predict in a way the course of psychic development and behavior, much as Cuvier, through the comparison of organisms, was able to construct certain prehistoric skeletons in advance of their actual discovery. Members of this school have informed me recently that attempts are now being made at such applications in Germany. One does not need, however, to draw the hasty conclusions that the Gestalten are units of more than phenomenal significance.

When, now, we have "discovered" our units, we may attempt to correlate them, and more especially to explain the phenomena presented in experience as complexes or causal combinations of these simpler units found or postulated; *rerum cognoscere causas* in some sense is certainly the aim of science. What is meant, however, in modern science by causal explanation is hardly what Vergil may be supposed to have had in mind when he wrote these oft-quoted words, and is, I believe, regularly misunderstood today by the layman and often by the professional scientist, even after his acceptance of Einstein. I say this, because one hears repeatedly from psychologists that "consciousness," even when allowed to be present, has no "influence" upon the responses of the organism; because certain physicists are still debating the validity of causality in apparent ignorance of the fact that ever since the criticism of Mill and Mach causality in the sense they have in mind has not been an element of science; and because of the recent controversy between the fundamentalist and certain scientists with respect to the doctrine of evolution.[9]

By causality in the type of science under discussion is meant nothing more than invariable concomitance. Causality has here, whatever may be its metaphysical status, nothing whatever to do with "efficiency" as commonly interpreted by the man in the street, or with "bonds" or "attractions," etc., which hold things together like a kind of cement or glue; it refers simply to observable and verifiable uniformities of coexistence and sequence, in other words to mathematical correlations or conditions. If we import "forces" into these mathematical equations, we should not subsequently forget, as certain physicists seem to have done in the case of the celebrated "Maxwell Equations," that these "forces," "energies," and the like are fictitious abstractions, "occult qualities," as Schopenhauer called them; and when we proceed to correlate "effects" or "results" with such "conditions" we should bear in mind also that "effect" in this case carries with it no metaphysical implication. A similar statement might be made with respect to the methodological value of the term "function" in many of its applications.[10]

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[9] Cf. Allport, *Social Psychology* (Houghton Mifflin and Company, 1924) p. 12 and *passim*.

If, now, we find "consciousness" of a specific kind as the invariable concomitant or characteristic *condition* of certain responses, there would seem to be no more objection to speaking of an "influence" of this in or on the total response than there would be to speaking of "influence" anywhere else in science, the "influence" being in no case a flowing over of some sort of imaginary material or electric fluid or force, but being merely identical with the factually established concomitance. On the basis of this method we are indeed no better off in the case of merely physical things in their alleged interactions.

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[10] "Cause," as Rogers says, "simply does not mean to the natural mind what it tends to mean for a scientific definition; and even the scientist is continually lapsing in his unguarded moments into the more familiar notion." Cf. "What Is Truth?" (Yale University Press, 1923), p. 143; Bowne, "Metaphysics," Revised Edition (Harper and Brothers, 1898), pp. 69 ff; Ernst Mach, *Analyse der Empfindungen* (Jena, 1900), pp. 62-71, 118, 225, 226 note; James, "Principles of Psychology," 1, pp. 136 ff.; Lloyd Morgan, "Emergent Evolution," pp. 21 ff.

Lotze emphasized this fact when he said (in the spirit of Ænesidemus and Hume) that while we seem at first sight to see how the cog of one wheel moves or causes to move the cog of its fellow we discover upon reflection nothing but temporal succession. Newton, who regarded "forces" ("gravity" among the rest) as mere fictions, solves this problem of any pluralistic universe by the intermediation of Deity. For positivistic science, however, it seems that explanations may be reduced to the quantitative correlations indicated, with the mystical, occult "influences," and "forces" (which popular thought takes to be *bona fide* realities) left out altogether.

About the earliest attempt to apply this natural science method of observation, simplification, classification, and explanation to the field of psychology is represented by the so-called "faculty psychology." The faculties were classes of psychic phenomena, obtained by the method of scientific analysis and simplified description, whereupon (in analogy with the hypostasis of the classes of natural science into so-called governing "laws" and "forces") the attempt was made to use them as principles of explanation; but, whereas it is characteristic of natural science that its classes (in accordance with the principle of Occam) become constantly reduced in number, the very opposite tendency prevailed of necessity in the psychology in question. In the vain attempt to make the supposed principles adequate to the complexity and multiplicity of the subject-matter involved, the faculties became endlessly divided and subdivided, until in the end they came near to being only verbal descriptions or mere names for particular psychic events. The simplification upon which the alleged principles rested had to be abandoned in any attempt at concrete application.

The insight of Herbart[11] and his school that nothing is explained by reference to a faculty (which did not, however, prevent him and his school of neo-realism from explaining change by referring it to the fiction of static quality) gave rise in psychology to the doctrine of psychic powers, which had the merit of leaving the way open for a determination of the actual conditions under which these powers come to be evoked.

Faculty psychology is to-day the psychology of the layman, but it is far from being restricted to him. The faculties have an insidious way of returning under various guises (even with professional psychologists for whom they are officially tabu); but they do no especial harm, I suppose, so long as they are recognized (with atoms, electrons, sub-ether waves, genes, poles, equators, seconds, degrees, etc.) for the merely conceptual tools I take them to be. The only danger from such "things" comes from their reification into ontological entities; and then criticism is in its full right in pointing out that there is no valid reason for believing in faculties, sensations, instincts, neurograms, engrams, patterns, and other Idols of the Tribe. There is no empirical proof for the existence of such mere forms, though some of them may have heuristic value.

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[11] "Werke" (Hartenstein), Bd. V, pp. 6-14; Bd. VII, pp. 610-612.

The fact that the mechanical method in its purity has not been so fruitful in other fields as it has been in physics, together with methodological scruples concerning the transfer of method, has called forth those genetic methods that endeavor to envisage reality not merely in cross section, but longitudinally, regarding given stages of development as "functions" of their antecedents. Later forms in this method are explained in terms of association or integration of lower or earlier forms; and the wider application of the method synchronizes with the rise of interest in biology, whence it was transferred to other fields. In earlier psychology it became a modified associationalism and in recent behaviorism the attempt to account for complex reactions of the organism as due to an integrating and "conditioning" of simple native reflexes. The meaning and source of this general method of approach was, however, not recognized by its naturalistic advocates, who have regularly regarded it without further ado as a mystical revelation of the nature of so-called "objective reality," rather than as a matter of scientific methodology.

In point of fact genetic method represents a break with the strictly mechanical impersonal method and becomes a preliminary attempt to interpret reality *psychologically.* Terms like "natural selection," "struggle for survival," "self-preservation," and many others bear on the face of them the hall-mark of their origin. In the attempt to explain the so-called world of objective nature by "evolution," we are, as I take it, really attempting to assimilate it to human nature—that is, to interpret it by analogy *as if* it were akin to human nature as immediately experienced, whether it really is personal or not; and we do this finally in order to *understand* it, as distinguished from explaining it, seeking, in the spirit of Aristotle, "conceptual necessity in the empirically actual." The only evolution we really understand at first hand, I believe, is psychic evolution, the organic growth or development of psychic functions; if this be not the empirical source of the idea, I should be at a loss to find one. The opposite attempt to explain mind, the source of this and all concepts, as itself a *real* product of evolution, seems to forget, if it ever knew, that "evolution," so far as science is concerned, is primarily a *theory,* subject as such to a criticism or theory of theorizing. Evolution is a function of mind, not mind a function of evolution.

The attempt to apply the genetic method, meanwhile retaining the mathematical mechanical method for the sake of practical prediction, gave rise to the hybrid doctrine of mechanical evolution, with its inherent contradictions, which prevailed as a metaphysics during the last quarter of the nineteenth century and made its influence felt in psychology in various forms of dynamic and functional systems. The interest in animal and comparative psychology which eventuated in Behaviorism was a direct outgrowth of this spirit. Here again it seems plain that those who have used this method in the spirit of positivistic practical science were seeking in their analytical observation and experimentation (which Mill well called "artificial observation") for genetic units in functional correlation; but here, too, it is probable that the results have been less significant than was anticipated at the start, although the method as such is theoretically unassailable and, with the development of more efficient instrumentation—which means, I presume, more powerful mathematical tools than we now have available—might lead to significant practical results.

Science depends upon mathematics also indirectly through all the forms of instrumentation upon which experimentation in the more recent sense of the word is largely dependent. All our tools, when we examine them carefully, are seen to be visible concrete mathematics; a lever, for example, is a visible proportion, and all other machines are similarly crystallized mathematical thought. Moreover, as has already been suggested, the progress of practical science throughout history has been strictly dependent on the development of mathematical knowledge, the period of modern analytics following closely upon the invention of algebra logarithms, analytics, the calculus, etc., with the present upheaval coinciding with the development of non-Euclidean geometry. The confusion to-day among physicists seems chiefly due to the fact that while the work of Einstein has brought home to them the relativity of science emphasized continually by Kantian and post-Kantian philosophy, many still cling to a realistic interpretation.

The science of antiquity, in so far as it was metaphysical in intention, went to pieces when its mathematics proved inadequate for the solution of the problems of dynamics which forced themselves on the attention of contemporary physicists; and *physicism* to-day, for a similar cause, seems again to be in a process of dissolution and transition with marked indications here and there of indeterminism and a teleological trend. Sommerfeld, for example, has said with reference to Bohr's experiments on radiation that the atom must *know* what it is going to do before it can radiate, and that a teleological transformation of causality is more in accord with the quantum theory than with the classical view. Still another authority in physics has maintained that "physics is steadily becoming immaterialistic in proportion as psychology is becoming materialistic"; so that it is not impossible that even the psychologizing of the atom may come to pass before psychology has been completely atomized or electrocuted. In any case, before identifying itself with any form of naturalism, psychology would surely do well to wait until it discovers whether the natural philosophy it selects for its theoretical basis is not obsolescent or already obsolete.

The problem of the psychologist is not, as the behaviorist seems to think, to prove the existence of an abstraction called "consciousness," of an abstract soul, of a world of "subjective ideas" divorced from their concrete settings, although perhaps none of these has yet outlived its usefulness. The psychologist is not required to prove that "the other one" is conscious, but merely to decide after due investigation whether there are aspects of concrete experience to which the adjective "conscious" is applied pertinently, or whether the description of any concrete experience is really complete without reference to some sort of consciousness as an essential factor, whatever else may be found in it.

It is hardly necessary to insist that Behaviorism is able to handle the facts of conscious response only by distorting them unduly or by ignoring what seem to be important aspects. The belief in its present adequacy seems to be abetted by ambiguities in such terms as "reaction," "impulse," "drive," and even "behavior" itself, in so far as behavior is not mere motion but rather movement tacitly interpreted as an expression of *activity* or conduct. We can doubtless apply the term "behavior" to physical objects only in a figurative sense, as when we call the changing spatio-temporal relations of the planets their "behavior"; and, although a man in an epileptic fit may perhaps be said to be "reacting" to stimuli, it is doubtful whether he can be said to be "responding." Behaviorism, as Brightman says of neo-realism, "uses language in a Pickwickian sense."

Meanwhile and with another purpose in view there is surely ample room for a method that has also been in use, I presume, ever since primitive man attempted to understand the behavior of his fellow men; I mean a truly functional or teleological method which takes due account of the self. The fact that up to date it has been much more difficult to develop than the simpler quantitative science does not signify that it is therefore not susceptible of further refinement, so as to make it of objective scientific value in the larger sense of all terms involved; and from the point of view of positivistic science it is not necessary now at least to decide which of the methods of handling the data of psychology or of any other science is metaphysically valid. If we only stick to facts and endeavor to avoid confusing method with ultimate predication, it ought to be no more objectionable to read a given series of events in terms of means and purpose than in terms of cause and effect.

If we mean by "objective," as is too often the case, merely what is spatial and material, regarding sense-experience as the foundation of our concept of reality and including in the term "objective" at the same time the implication of true universality, then the functional method under consideration could not be called objectively valid; but it is permissible to believe that the so-called objective world in this sense is no secure resting place for the wandering soul, being merely an abstraction created, like many another "fact," for practical purposes and possessing only phenomenal reality for subjects. The distinction of subject and object is surely not the same as that between "psychical" and "physical," and scientific objectivity cannot be identified outright with materiality in any of its forms.

When we say, making use of stock examples, that the three angles of a triangle are equal to two right angles or that Cæsar crossed the Rubicon, we mean that these judgments are both of them "objective" in the sense that they are both of them "universal" or "common to all"; they are not merely insignificant mental events, but judgments of objective reference. The objectivity of knowledge, at least in its intention, means ultimately simply this universality, or the validity of the judgments in question for a universe of discourse which is not any individual illusion. We explain given individuals objectively by universalizing them, and the goal or ultimate purpose of this is the reduction of all individuals to order within the unity of an ideal system. This is the tacit presupposition which guides the scientific mind in its "will to know" —the means to its end—so that even mechanical science rests ultimately upon teleology. Moreover, unless the commonly accepted fact of consciousness or the conscious self be the illusory "thing" some investigators are declaring it to be, we are not limited to a mechanical method in any field of knowledge. If we may trust introspection (and in truth we must do so, I suppose, even in order to distrust it) we may also objectify experience by the more concrete method of understanding or interpretation.

Starting somewhat in this way we might find that the life of consciousness may be regarded, not merely as a movement or movement patterns determined by objective necessity, but also as striving rooted in subjective human necessity and differentiated empirically from any movement, so far as motion has been defined. Psychical activity cannot be characterized as a movement which starts with initial velocity and fixed direction, proceeds uniformly or with uniformly accelerated velocity until it dies out or spends itself without renewal; it is better described, on the contrary, in one of the figures of James (when he forgets for the nonce his "stream of thought") as the flight of a bird with its peculiar variations of direction and velocity and its intermittent perchings. If described in terms of movement, it must be characterized as a unique struggling movement that persists, is subject to renewal from within itself, and ends typically "with a snap" instead of dying out. The conative continuity of consciousness presented in such a typical illustration as "desire and its satisfaction," illustrates this peculiarity of living experience which differentiates it qualitatively from any mere motion. Desire is not understood as mere "drive," although the legitimate goal of mechanical science is certainly to reduce it to such a mere drive; it represents in any case a different psychic level from "impulse" and "drive" as these terms are usually defined. These are at the best only the relatively formless material of desire.

It was a recognition of the difficulty of explaining function as a mere summation under the mathematical category of composition which led Wundt as early as 1860, in harmony with Kant, to his concept of "creative synthesis" and brought Ardigó somewhat later to his *confluenza mentale.* It is a like dissatisfaction with a mechanical method which induced Lloyd Morgan, Haldane, and others more recently to make use of similar ideas in the field of natural science. From the point of view of methodology, however, such concepts, together with that of the unconscious or non-conscious, need not be interpreted at once metaphysically (as seems to have been done) in the conviction that mechanical method has finally demonstrated its bankruptcy. They could still be taken, and in fact must be taken methodologically, to imply nothing further than undiscovered factors, subject to future determination by precisely the same method. The justification for such an adherence to method has been furnished frequently in the past and is given even at the present moment in physiological psychology by the recent very promising developments in our knowledge of chronaxy in muscles and nerves, which suggests a probable extension of mechanical explanation into regions hitherto declared by expert opinion to be inaccessible. In so far as the processes with which psychology has to do are reproductive we may certainly expect to establish laws or relatively constant regularities for the phenomena involved, and certainly a considerable amount of the behavior of human organisms seems mechanical enough to give the behaviorist a rich field of investigation.

Nevertheless, the truly natural and concrete method of handling the facts of conscious response would seem to be the functional method already mentioned. Responses of the psychical organism when so treated are not regarded as mere reactions, nor as mere integrations of analytical abstractions, but are interpreted in the light of the idea of personality. Whatever may be said for the desirability of mechanical explanation of any sort, the fact remains that nothing is perhaps more characteristic of the life of consciousness than the selective expectancy already referred to. Consciousness does not present itself empirically merely as a blank stare at presentations or as a mere mosaic of temporal succession and aimless drives, but rather as a process of conative continuity which defines its own ends, reaching forward for what is to come. It does not seem typically like Micawber waiting for something to turn up; it turns things up, hunting for what it wants. It *evolves* typically in organic patterns of *activity*, and this suggests the possibility, if not indeed the absolute necessity, of developing some thoroughgoing corresponding method of treatment.

The individual mind on such a view may be regarded as a progressive organization of functions in functional correlation with the total social structure; and its acts would then be interpreted as relatively objective striving, or as striving for universal cultural ends, impossible of any realization by an isolated individual. Taken in abstraction from such universal objectives, which should be for psychology methodological postulates, the striving of the individual is as unintelligible as is a hand or a foot apart from a body, however well it might be explained mechanically as a restoration of disturbed equilibrium, or as readjustment of habit to a changing environment.

Habit with instinct, as understood in biology, may be the last terms of the analytical method; but, while we are indeed creatures of habit to a degree that almost excuses the enthusiasm of behaviorism, there is doubtless room for a method which takes due account of the fact that habits may be broken and that habits themselves may be viewed as self-determined in accordance with our selected function and the measure of indeterminism we may come to possess. Habits are indeed mechanisms, but in part at least they appear to be automatisms established by conscious voluntary repetition for the *purpose* of relieving attentive consciousness of a part of its burden. Interpreting the unknown by what we apparently know here, it is permissible to regard all habits as of like nature, bearing in mind also the further possibility that instincts themselves are ultimately phylogenetic habits. In any case habits are habits of a psychic organism and should not be hypostatized into fundamental entities.

For the method in question, however, there are no independent individuals historically or logically prior to society; historically the individual is a product of social evolution, and logically he is a function. The individual, whether for theory or for practice, is of course an unreal abstraction broken from an organic totality; and his experience, apart from such *objective* orientation, is merely a conglomeration of mutilated brute facts of no rational significance whatever. The purely individual on any method is an irrational, standing for exceptions that have not been explained as law or interpreted as functions of personality.

With any such method as this there would be no question of an attempt either to construe the knowing or learning process in abstraction from its unifying purpose as an integration of reactions, or to construct the cultural whole as an agglutination of social atoms. On the contrary, the whole would be taken as existing logically and historically before its "parts," which would be interpreted only as functions of the whole. Instead of explaining the higher in terms of the lower, the consequents in terms of their antecedents, and in general the meaningful in terms of the meaningless, the process would be reversed.

Even the lowest levels of perception might be interpreted as learning by experiment in the sense that a developing percept represents a continuous reaching out after new aspects and relationships in the progressive determination of a larger whole in some sense vaguely apprehended or anticipated from the very start. Granted that the "senses" represent potentialities of experience or instinctive tendencies to experiment, such dynamic "anticipation of perception" would be intelligible. If there be any instincts (that is, if the concept still has the methodological value I believe it to have), they would stand similarly, not merely for any mechanical chain of reflexes, as is usually held by behaviorism, but rather for a truly organic response, susceptible of alteration and improvement through genuine trial, error, and relative success.

Normal functioning would be the self-adjustment of the psychical organism to a total cultural environment that in the case of leaders in various fields would be superordinate to any actual social structure in which they might find themselves; so that in such cases the function of the individual would represent an adjustment of environment in the restricted sense, that is, some modification or transformation of existing social structures in accordance with fundamental human necessity—the genuine functioning of history in the life of the present. Only such objectified or universalized striving of the individual in the field of knowledge or of practice would be intelligible; and there would be degrees of relative objectivity in thinking and doing all the way from genuine constructive leadership and habitualized or institutionalized behavior to antisociality and abnormality. Abnormal functioning would be purely individual aberrations in thinking and doing that would signify relative disorganization of individual structure—that is, again, something irrational, of which the chronic liar and the suicide or murderer would be the extremes. For such a method of handling the psychic data furnished by introspection and empathy, the ideal of purposive personality would be the goal of endeavor, precisely as in the method of mechanical science the concept of a gapless system of law stands for its endless problem.

The method of a given science is commonly said to be determined by its problem and principle, both of which may be matters of lively debate, dependent in the last analysis upon our first principles and axioms which are themselves incapable of proof. The problem represents the ostensible goal or purpose of the science, to which the method is in any case relative. If we should also insist that the method must accommodate itself closely to the subject-matter as found empirically and that interpretive concepts must establish their value experimentally, I doubt whether any method could present a better claim to recognition in psychology than one which finds the meaning of mind in what it aims to do. Viewing living experience as an organizing process which is preëminently synthetic, revealing its nature as its history, we shall have before us a more critical concept of experiment than that of ordinary laboratory procedure. History as the thinking and doing of the individual or the race is essentially experimental in the fullest sense of the word, although it may be freely granted that there is a "history without persons" as there is a legitimate "psychology without a soul."

In their empirical use, we may, then, affirm in agreement with Kant that nature and freedom do not form a disjunction,[12] and also that the world is not half mechanical and half teleological, but all mechanical and all teleological. In concrete living experience, purpose and mechanism, freedom and law are truly as inseparable and as compatible as the concavity and the convexity of the circle; in fact, only when taken as abstract concepts of alleged metaphysical validity do we find them in apparent contradiction.

From the point of view of methodology, a certain latitudinarianism, which considers all methods equally valid and all equally relative, would seem to be indicated; and upon such a platform of positivistic science all psychologists could meet without discord. Whether relativism be in fact the last word even for psychology is another problem, which so far as I have heard has not been definitely settled and about which the scientist as such is not especially concerned. Eventually, I suppose, the object of science is the same as the object of knowledge; and the contradiction of concepts taken abstractly would be transcended concretely in the synoptic insight that fundamental reality is neither lawless nor without purpose.

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[12] *Kritik der reinen Vernunft*, Elementarlehre, II Th., II Abth., II Hauptst., 9 Abschnitt; *Kritik der Urteilskraft* (Vorländer), pp. 66-68, 78, 80-81 ff.

V

BEHAVIORISM—A BATTLE LINE

BY WILLIAM P. KING

THE materialistic theory of Behaviorism is a new statement of the old materialistic hypothesis of life and the world.

At the same time it presents the shifting of the battle line of religious faith. It is most important to have the enemy located and not to continue throwing duds into deserted dugouts.

The most active and perilous foe of religion to-day is what is termed the new psychology of behaviorism.

Its definite purpose is announced by a modern advocate: "Religion hitherto has been wounded by science on the surface of the skin only. It has been reserved for psychology to enter the arena and to deliver the deathblow. When the combat is ended we shall hear no more of God or the soul or religion; all the apparatus of religion will be scrapped, and mankind, free from the incubus of false beliefs, will march to the conquest of the universe."

We should gladly welcome whatever knowledge of physical and intellectual processes may be brought to light by a materialistic philosophy.

However, it is evident that in the explanation of causality and purpose certain physiologists and psychologists are prone to the bias of specialism.

Sir Isaac Newton replied to his friend Halley, the great mathematician who had asserted his infidelity concerning religion: "I always attend to you, Dr. Halley, with the greatest deference when you do us the honor to converse on astronomy or the mathematics, because they are subjects which you have industriously investigated, and which you well understand; but religion is a subject on which I always hear you with pain, because this is a subject which you have not seriously examined, and do not comprehend; you despise it because you have not studied it, and you will not study it because you despise it."

But in pointing out the bias of specialism, and the possible fallacy of the single-track mind, we are very far from asking any consideration or concession from the advocates of a materialistic psychology. If the advocates of a Theistic faith cannot outthink, outreason, and outargue the antagonists of that faith, then the sooner we are thrust out of a fool's paradise the better it will be.

We may take no premature comfort in the adjustment of conflicts between theologians and scientists, as touching the Biblical narratives of man's origin and the six days of creation of the Genesis account. These were mere outpost skirmishes. The conflict to-day is along the whole battle line of a materialistic or a spiritual interpretation of the world and human life.

I. What Is Behaviorism?

Dr. J. B. Watson, the leading representative of Behaviorism, sums up in brief the creed: "Psychology, as the Behaviorist views it, is a purely objective, experimental branch of natural science, which needs introspection as little as do the sciences of chemistry and physics. The position is taken here that the behavior of man and the behavior of animals must be considered on the same plane. It can dispense with consciousness in a psychological sense."

Conditioned reflexes are made to explain memory and even habit. Synapses are connections or junctions between sensory and motor nerves. The change of resistance at certain synapses produces a new reflex path.

Dr. Watson writes: "All behavior is mechanically determined by reflex processes." He says again: "The behaviorist asks for nothing to start with in building a human being but the squirmings every one can see in the newborn infant."

The baby with its squirmings is no small affair by any means.

Dr. Watson has no concern about attempting any explanation of the origin and nature of the marvelous raw material with which he starts.

However, we should give grateful recognition of some useful contributions which have been made by the behavioristic school of psychology.

The overestimate of the shaping power of environment on the human organism serves the good purpose of awakening us to a realization of the tremendous power which does belong to environment. The conviction needs to be deepened that the privileged portion of society cannot leave the unprivileged portion in slums and foul surroundings without endangering the whole of society.

Behaviorism is mistakenly limited in popular thought to materialistic Behaviorism. We are limiting ourselves in this discussion to this one theory of Behaviorism, while recognizing the fact that Behaviorism as a method is compatible with either a materialistic or spiritual interpretation of life. As a method it is legitimate. In the case of animals and young children we can get no response from any introspective thought and can only reckon with the objective behavior.

II. The Contrasted Theories

1. In the interpretation of nature, are we to recognize only mechanism, or must we admit teleology?

Teleology is derived from *telos*, purpose or end. Every machine is the embodiment and expression of purpose. There is in reality no conflict between mechanism and teleology, only as some materialistic scientists endeavor to eliminate all purpose from the mechanism.

All views that are purely mechanistic make shipwreck upon certain stubborn facts and phenomena which yield to no explanation aside from the presence of purposiveness.

The teleological conception of life and the world is confirmed by the orderliness of nature as against the impossible idea of "a fortuitous concourse of atoms." The marks of mind and purpose, the adaptiveness of nature, and progress toward high and finer forms of life, constitute an "onward advancing melody."

Professor Henderson of Harvard shows in "The Fitness of the Environment" that there was not one chance in countless billions that the world left to itself would be fit to sustain life. Any one or two conditions altered would have prevented the orderly development of life on the planet. Yet we are asked to believe that this marvelous reciprocal fitness of the environment and the organism was not the work of intelligent purpose. We are asked to assume that the whole sweep of inorganic and organic evolution over millions of years shows no whit of intelligence or design.

2. In the second place, there are the opposing theories of parallelism and interactionism. Behaviorism magnifies the body and debases the mind as former extremes of thought debased the body, and so unduly magnified the mind as to ignore its large measure of dependence upon the body.

It is the claim of the behaviorists that the conscious process of thought has no effect on behavior. A thought determining an action is entirely mythical. The two sets of processes physical and psychical run parallel all the way, without interlocking at any point.

The opposing theory of interactionism, while not competent to solve the besetting mystery, nevertheless brings insuperable objections to the attempted solution of Behaviorism of the body-mind problem. The interactionists claim that psychical processes play an important part in determining conduct. Interactionism holds that thinking does produce an effect on action.

It is doubtless true that the reaction of the physical on the mental is more than has been generally supposed and the comparatively new science of endocrinology bases a large part of human behavior on the gland secretion.

In so far as the gland secretion is concerned which enables us to flee from danger, we welcome it.

"For if we are scared and run away,
We will live to run some other day."

It is highly important to understand the action of the glands in response to strong emotion. The adrenal glands, we are informed, are stimulated by anger or fear, and a secretion is introduced into the blood stream. An extra supply of blood is furnished the fighting and running muscles.

We can as readily discern the effect of mind on body as we can discern the reverse. The mind can so act upon the body as to produce disorder and disorganization of the physical functions.

It is no wonder that the ancients located the seat of thought in the kidneys. Mental states affect the digestion, the circulation of the blood, and breathing.

The mind as a spiritual entity is further illustrated in autosuggestion, psychotherapy, hypnotism, and telepathy, which cautious authorities regard as confirmed by the facts.

After the World War the psychotherapeutic treatment received a fresh impetus in the medical ministry to shell-shocked soldiers. The methods of psychotherapeutics succeeded in many instances, where the older methods failed. It is increasingly admitted, on the part of medical science, that there is no tissue of the human body but may be influenced by spirit.

The power of the mind on the body is far greater than either physiologists or psychologists have recognized, and within the last twenty-five years the evidence of this power has been cumulative. But this verified fact can find no place in the Watsonian Behaviorism.

At last personality can be no more explained aside from the purposiveness and power of the mind than the universe can be explained without teleology.

There has been a repetition of the same conflict and panic which marked the earlier stages of the sciences of astronomy and biology. What we have now learned is to look for manifestations of the Divine, not in the irregularities, abnormalities, occasional disturbances and obscurations of our human nature, but rather in the fullest energy of its reasonable and healthy exercises. We have learned that God is truly found in law, not in gaps and exceptions, in cosmos rather than chaos.

Again we do not disregard origins and methods and processes, but we magnify the goal, and hold with Aristotle that there is nothing in the end which was not also in kind in the beginning, and that the nature of a thing is the best that it can grow into. When the sperm cell and the egg cell unite, there is the beginning of the individual human being, but it is a long road to a Plato, a St. Paul, or a Shakespeare. Some scientists are so obsessed by the acorn that they cannot see the oak, and so obsessed by protoplasm that they cannot see the greatness of the man.

III. The Insuperable Difficulties

There are insuperable difficulties confronted by the theory of Behaviorism.

1. There is a purposiveness manifest in instincts. The attempted solution of all behavior as a response to an outside stimulus evidently fails, even among the humblest creatures. The solitary wasps on leaving the nest circle around it many times, apparently making what is called a "locality-study."

It is observed that if while the bees are out foraging the hive is removed from its location, the bees return to the spot where the hive had been located. This contradicts the idea that the bees are guided to the hive by a response to the odor of the queen bee or of the hive in general.

The description of an instinct is that it is present at birth, is universal, appears spontaneously, and is very stable and difficult to modify. Dr. Watson says: "There are then for us no instincts. Everything we have been in the habit of calling an 'instinct' today is a result largely of training—belongs to man's learned behavior. There is no such thing as an inheritance of capacity, talent, temperament, mental constitution, and characteristics."

This theory is knocked out, however, by as lowly a creature as the wasp.

The wasp gathers food, lays eggs beside the food, and covers the whole with a wall of mud. The wasp has no chance to learn from older wasps. She has never seen a wasp's nest made. When the last preceding nests were made, she herself was an unhatched egg.

Instinct is evidently a non-learned behavior.

Lloyd Morgan tells us in "Habit and Instinct" that the yucca moths emerge from their chrysalis cases just when the large, yellowish-white, bell-shaped flowers of the yucca open, each for a single night. From the anthers of one of these flowers, the female moth collects the golden pollen and kneads the adhesive material into a little pellet, which she holds beneath her head by means of the greatly enlarged bristly polyps. Thus laden she flies off and seeks another flower. Having found one, she pierces with the sharp lancets of her ovipositor the tissue of the pistil, lays her egg among the ovules, and then, darting to the top of the stigma, stuffs the fertilizing pollen-pellet into its funnel-shaped opening.

Intelligence joined with instinct is further seen in the behavior of birds.

Wasps, moths, bees, and birds and their behavior are sufficient to refute Behaviorism, with their manifestation of the union of instinct with intelligence.

2. The fact of human consciousness finds no solution in the behavioristic philosopny. The passing of sensations into consciousness is entirely side-stepped.

We confess the mystery of the transition from molecular changes to consciousness, but it is better to hold to a mystery than to cling to an attempted solution, which is both a mystery and an absurdity. If consciousness is but a shadow, then our awareness of ourselves, our meditation upon our behavior, our intentions, and our purposes are all hallucinations.

If knowing is a physico-chemical process, then it is meaningless to call such processes true or false. Truth and falsehood are without any distinction.

To deny the consciousness of the mind is to deny the one thing we know best.

In fact, a man cannot doubt his own consciousness. If he thinks that he does, then he should cease endeavoring to thrust himself into the consciousness of other people.

A man may doubt the reality of an atom, and he may have some doubts about the reasonableness of his doubts, but he can have no doubt as to the fact that he doubts.

We have a direct and immediate knowledge of ourselves which we do not have of protons, electrons, or of any other physical thing or force.

Behaviorism utterly fails to explain how we can will to revert back a score of years or more and bring to mind some event of which we had not thought for years. How do these physical cells bequeath memory to their successors, and how do these myriads of cell-memories become fused into the unity of consciousness?

Imagination projects into the future, forms images in the consciousness, and pictures the course of events. It has an influence on conduct for which no place is allowed in the behavioristic scheme.

3. All of the high values of life are swallowed up in the maelstrom of a materialistic conception of life. The acceptance of the materialistic conception of life would necessarily mean the death of idealism. If life is a mere mechanism without a soul, then it has no high value or spiritual significance. If conduct is an automatic response to stimuli, then sin is nobody's fault, or rather there is no such thing as sin.

"If every human action is a mechanical reflex response to a stimulus," then we should not commend Jesus nor condemn Judas, we should not praise Washington nor condemn Benedict Arnold.

Since all things are reducible to physics and chemistry, man only lives in a kind of fool's paradise, when he imagines that he lives "in the realm of ends" and appraises such ends as worthy or unworthy. Our old piebald world with its ambivalent forces represents only a sham battle. The credulity of Fundamentalism is the height of reason compared with Watsonian Behaviorism. One can only be a consistent behaviorist by chloroforming the intellect. The Behaviorist will occasionally break over and show signs of common sense. For example, Mr. Watson, evidently off his guard, says: "It is our fault that individuals go wrong.'

Now it may be freely admitted that in certain pathetic and abnormal individuals freedom of will is practically reduced to the vanishing point. Let us admit the power of a complex which is defined as a system of connected ideas with a strong emotional tone and a tendency to produce actions of a certain definite character. An individual in the grip of an inferiority, superiority, love, fear, hate, or persecution complex, with imperfect glandular secretions, with a weakening heritage of heredity, and placed amid an adverse environment, has a very slender fighting chance in life.

But we are not to estimate human life by abnormalities.

We are reflective individuals, looking before and after.

Man meditates on invisible principles. The well-regulated self refuses to adapt itself to environment, which is the god of behaviorism. He insists on remaking his environment in the light of ideal ends.

He evaluates instinctive activities in the light of ideals, and his will has the power to canalize its impulsive energies along the line of its decision.

He refuses to gratify a desire until it is brought to the bar of conscience and reason. He regulates his behavior in terms of value. When confronted by a temptation to wrongdoing, he will deliberately throw into the scales his self-regarding sentiment, a desire for the approval of the best people, and through a "luminous disposition" he may seek the divine approval and thus win his moral victory.

Darrow and Mencken and other Behaviorists hold that in reality the criminal is not responsible and could not have done otherwise, and at the same time plead with society or with a jury to change their attitude toward the criminal. But if the criminal cannot do otherwise than he does, neither can society or the jury.

If we are to have a system of determinism, by all means let us make it consistent.

Of what profit is it to us if we escape the old theological fatalism, only to fall into a fatalism where all things are determined by physical forces, where all moral responsibility vanishes, and moral law becomes an illusion? It is not simply a situation in which "East of Suez, where there ain't no ten commandments," the ten commandments are without any binding obligation anywhere.

According to Behaviorism all exhortations to choose between good and evil, to live in accord with the highest ideals, to cheerfully acquiesce in sacrifice for the common good, to meditate upon the true values of life, to make an eager quest for the true and beautiful and good, are addressed to a phantom.

Faith, hope, love, truth, beauty, and goodness all vanish into thin mist.

The human personality has no value, because there is no personality.

Why should there be any more concern over the loss of life in a train wreck than over the destruction of the engine?

How much better then is a man than a sheep, or how much worse?

The inevitable results which would follow the materialistic interpretation of life are evidence of its falseness. What would befall us if the foundation of spiritual faith should be destroyed?

Civilized society has always rested on religion. If this fleeting life is all, if individual responsibility is a myth, if men are at last convinced that moral obligation is an illusion, then all our behaviorism will become in reality a misbehaviorism. Then a treatise would be in order with the caption, "Why We Do Not Behave Like Human Beings."

4. The attempt to construe the world and life aside from a directing purposiveness and intelligence is attended with insurmountable difficulties.

Religious faith has its difficulties, but they are not to be compared with the difficulties of unbelief.

Long ago Bacon wrote: "I had rather believe all the fables in the Legend and the Talmud and the Alcoran than that this universal frame is without mind."

Streeter in the same vein writes: "It has taken centuries of conscious and intelligent effort to produce the machine which prints our morning paper; and has this universe, a machine the complexity and intricacy of which baffles the intellect and bewilders the imagination, come into existence of itself, the result of blind, unconscious force? Is the Universe one gigantic accident consequent upon an infinite succession of happy flukes? Of all the strange beliefs that man has cherished, none flaunts a paradox so staggering as this."

5. Behaviorism is refuted by an inductive study of a wide range of facts.

Perhaps at this point we can do no better than to make a brief summary of the debate between Watson and McDougall. In the debate Mr. Watson denies the soul, because no one has touched the soul or has seen one in a test tube. His denial of consciousness is on the ground that it has never been seen, touched, smelled, tasted, or moved. He said: "We need nothing to explain behavior but the ordinary laws of physics and chemistry. . . . Thinking is behavior, is motor organization; . . . thinking is merely talking, but talking with concealed musculature."

Since all actions are reflexes, there is of course no place for purposiveness in human activity.

It would not do to say that Mr. Watson chose between the alternatives of debating or not debating with Mr. McDougall. The fact that he did is evidence that he could not have done differently.

While allowing no place for "purpose," yet it is the announced "purpose" of the Behaviorists to prove to other human beings, who have no freedom of choice, that they should accept the theory of Behaviorism. We agree that there is much truth in the potency of environment and it is the "purpose" of Behaviorists to change the environment.

It was doubtless the "purpose" of Mr. Watson in the debate to prove that he was right, and that Mr. McDougall was wrong. His "purpose" was to strive to that end. He was doubtless "conscious" of the debate, and it was his "purpose" in all probability to endeavor to have his "mind" at its best. He doubtless experienced the desire to come out triumphant in the debate. We may wonder as to whether he debated with McDougall because he could not possibly have decided otherwise. We wonder if he ever decided to do what he did do. We wonder if Watson remained "conscious" after the debate.

But we will allow Professor McDougall to make his own reply. "There is sane Behaviorism, or that kind of psychology which, while making use of all introspectively observable facts or data, does not neglect the observation of behavior, does not fail to make full use of all the facts which are exclusive data of Watsonian Behaviorism. . . . And here I would point out that there is a class of data which Dr. Watson's principles compel him to neglect, to repudiate; namely, the facts which we may observe as to the various conditions, external or bodily and mental or subjective, under which the various modes and phases of our conscience experience arise."

Professor McDougall then proceeds to puncture the bubble of Behaviorism with a pin point. "I place my hand upon the table and Dr. Watson sticks a pin into the tip of one finger. My hand is promptly withdrawn; that is the behavioristic fact. I say that I felt a sharp pain when the pin was stuck in; Dr. Watson is not interested in my report of that fact. His principles will not allow him to take account of the fact, nor to inquire whether my statement is true or false. He repeats his experiment on a thousand hands, hands of babies, men, and monkeys; and finding that in every case the hand is promptly withdrawn, he makes the empirical generalization that sticking a pin into an extended hand causes it to be promptly withdrawn, and that is as far as his methods and principles will allow him to go in the study of this interesting phenomenon. . . . But now I ask Dr. Watson to repeat the experiment on myself. He sticks in the pin once more; and this time the hand is not withdrawn, but remains at rest; and I continue to smile calmly upon him. What will Dr. Watson do with this new fact, a fact so upsetting to his empirical generalization which appeared to be on the point of becoming 'a law of nature'? He can do nothing with it. But if for a moment he will consent to use ordinary good sense and will listen to my 'introspective' report, and if I report truly, he may be much enlightened; though if I wish to mislead him and report falsely, he may be deceived. There in a nutshell you have the difference between Sane Behaviorism and Watsonian Behaviorism."

Professor McDougall answers Dr. Watson's theory of thinking by pointing out cases in which the patient suffered aphasia, or injury to the cerebral speech organs, and yet the thinking was not impaired.

Professor McDougall further replies to the mechanistic dogma of Behaviorism by pointing out that, applied to a judge or juryman set to try a case for murder, it would prohibit any inquiry into the intentions, motives, or responsibility of the accused.

Professor McDougall adds: "Man is fundamentally a purposive, striving creature. He looks before and after and longs for what is not. And he does not merely long; he strives to achieve that which he longs for, to bring about what is not yet actual, what he judges and desires should be; sometimes he succeeds, sometimes he fails, and sometimes he makes some progress toward the ideal goal. Any psychology which refuses to recognize the reality of this longing and striving and which denies all efficacy to such striving is useless and worse. Like Behaviorism, it is a mere fad of the academic mind that bars the progress of our knowledge of human nature. As the late Professor Munsterberg so strongly and repeatedly insisted, this elaborate academic fiction which is the mechanical psychology has no bearing on the practical problems of human life."

IV. Behaviorism and Continuance of Human Personality Beyond Death

In spite of the professed indifference of some people who respond to questionnaires, I have my own confident conviction that the one question of most interest to most people is the question of what lies beyond death. Since this particular inquisitiveness of the mind is covered over by thoughts and strivings in the realm of the physical, there are the superficial observers who would give it a small place among the general interests of mankind. But I am persuaded that it is generally true that if we could have assurance that one question of our minds would receive an answer, that question would be, Is the universe friendly, does God care, does life continue beyond the grave? These three are one.

Whether we believe in immortality or deny it, we would be eager for this positive assurance.

Thomas Huxley expressed this longing: "It flashes across me all sorts of times and with a sort of horror that in 1900 I shall probably know no more of what is going on in the world than I did in 1800. I had sooner be in hell a good deal; at any rate in one of the upper circles, where the company and climate are not too trying."

Behaviorism makes a denial of immortality as positively as faith makes its affirmation, for its theory is that the physical organism is all that there is of man.

Over against this assumption of a naturalistic psychology is the fact that, in the course of evolution, the mind shows an ever-increasing tendency to free itself from physical control, to assert its supremacy, and to live a life undetermined except by the laws of its own nature.

As the individual develops, the mind more and more uses the body and brain as instruments in the purposeful activities of life.

The two distinct and opposing theories are the productive functions of the brain or the transmissive functions. According to the theory of the productive function, the physical brain produces the consciousness and both fall together into dissolution. Consciousness sustains the same relation to the brain that the steam does to the engine or the electric current to the dynamo or the flame to the fuel. The transmissive function is that there is the supremacy of the mind, and the brain is used as an instrument of transmission, just as the refracting lenses which do not produce but transmit the light, as the keys of an organ which transmit the music, as the strings of a violin which transmit the melody, or a radio set, which does not produce but transmits the message.

John Fiske the scientist wrote: "Of all realities, the soul is the most solid, sound, and undeniable. . . . Materialists sometimes declare that the relation of conscious intelligence to the brain is like that of music to the harp, and when the harp is broken there can be no more music. An opposite view, long familiar to us, is that the conscious soul is an emanation from the divine Intelligence that shapes and sustains the world, and during its temporary imprisonment in material forms the brain is its instrument of expression. Thus the soul is not the music, but the harper; and obviously this view is in harmony with the conclusions which I have deduced from the correlation of forces."

Dr. F. C. S. Schiller points out the greater reasonableness of the transmissive theory: "The loss or impairment of consciousness that follows brain injuries is often after an interval followed by a restoration of the lost functions which are now performed by other areas in the cortex. Such facts best accord with the transmission theory, which can say that what was injured was the machinery by which the manifestation of consciousness was rendered possible and that later on consciousness became able, from the uninjured parts, to make a mechanism capable of acting as a substitute for the lost parts."

Dr. J. A. Hadfield, a noted surgeon of the British Navy who has had much experience with shell-shock and disorder suffered by soldiers, is convinced that the mind has such control over the neural and other physical processes as to give evidence that it can be no mere product of the brain. He asserts that the independence and control of the mind is such as to suggest "the possibility of its becoming entirely liberated from the body and continuing to live disembodied and free."

If it be true that the mind gains mastery over the brain as an instrument, as the violinist makes use of the violin, then when the physical instrument of the mind dissolves can the mind secure another instrument? Can man the violinist secure another violin?

If the mind has such supremacy and independence as to act creatively through the brain, may it not be independent enough to act independently of the physical organism?

Dr. A. K. Rogers asks: "What is to hinder the relation of consciousness to reality from being such that it shall still go on with only its point of connection shifted? There is the whole wide universe to furnish such a point of connection. Why should this particular relationship which now holds necessarily be the only possible one, so that its severance will annihilate one of the terms related?"

The insinuating doubt persists because of the frailty of our imagination. We are unable to visualize our continuance in another stage of life after death. We cannot go back to the old idea that the personality in a future state makes use of the same brain and physical organism as in our present existence. We accept as authoritative, "Flesh and blood cannot inherit the kingdom of heaven."

After all that may be thought and said there still remains the venture of faith. "God giveth it a body as it hath pleased him."

Our purpose here is not to set forth the various forms of evidence for immortality, but to limit ourselves to the philosophical viewpoint in showing that the spiritual conception of life is more reasonable and more consistent with the facts of life and experience than the materialistic explanation.

Our future hope, our faith or unbelief reverts back to our interpretation of the world as purposeless or teleological.

We are convinced that the observation of Bacon is correct: "It is true that a little philosophy (or a little psychology) inclineth man's mind to atheism: but depth in philosophy bringeth men's minds about to God."

PART II

BEHAVIORISM AND VALUE

VI

BEHAVIORISM—A TECHNIQUE OF CONTROL, NOT A MEASURE OF VALUES

BY WINFRED ERNEST GARRISON

TO the editor's invitation to contribute a chapter to this volume, I replied that I was not interested in participating in any general attack upon the behavioristic psychology, since the merits of its method seemed to me to be at least in even balance with the fallacy of some of the conclusions which—illogically, as I believe—have been drawn from it. The Behaviorist as pure scientist, working with a body of data to which his laboratory methods are adapted, has contributed much to the understanding of human nature, and there is ground to hope that a further application of his methods of objective observation may develop useful techniques for the beneficial control of conduct. But the Behaviorist as speculative philosopher—which is the last thing he would admit being—attempting to define human nature wholly in terms of physical acts and to exclude as unreal all data except those which are amenable to his particular methods of observation and measurement, is quite out of bounds and is the enemy of psychology as much as of religion; for if consciousness is negligible or nonexistent, there is no reason why anyone should study behavior. Behavior is significant only because there are elements other than behavior in the human process, just as gold is valuable only on condition that there are other things which can be bought with it.

The term Behaviorism, although still comparatively new, has become, through much careless use, almost as slippery as an old coin, and the image and superscription which are proper to it have been so nearly effaced that counterfeits easily circulate in its place. Properly speaking, it describes a method of psychological research and laboratory procedure, the essence of which is the application of exact measurement to the physical reactions of organisms to stimuli and the manipulation of the stimuli to alter the reactions. The organism which is subjected to this form of interrogation and education may be any living thing, from a polyp to a philosopher. It might even be a plant, for plants as well as animals respond to stimuli, though more slowly and with less varied reactions to the narrower range of stimuli to which they are sensitive. But since even those thinkers who have banished thought from the field of their concern have not as yet manifested much interest in the psychology of vegetables, the behavioristic method of investigation may be said to be confined to animals, so far as it relates to psychology.

The stimulus may be any excitation or situation which leads the organism to do something or to alter what it is already doing. It may be a sight, a sound, a touch, a taste, or a smell, or a combination of these. It may be something which causes the organism to approach, or to recede, or to perform some more complicated adjustment. The main point is that it must be something which will produce observable and measurable action. It is hard to state the matter with that perfect objectivity which the strictest sect of the Behaviorists insists upon. It is not quite accurate to say that stimuli may be sights, sounds, tastes, and so on, for seeing, hearing, and tasting are states of consciousness, and we are trying to leave consciousness out of account. It is no concern of ours, as Behavioristic investigators, whether or not the rat in the maze smells the cheese, or whether or not the dog hears the bell in the famous experiment dealing with the reconditioning of the response of his salivary glands. The stimuli are the objects, not the sensations, which we may carelessly assume that these evoke.

Similarly, the responses which are the objects of observation and study must all be overt physical acts or changes in physical condition. They may be manual, verbal, or visceral acts. Fear and anger are not responses; but running away, fighting, quickened heart action, dilated or contracted blood vessels are. The feeling of desire which an animal may have for an article of food placed just out of reach and the mental processes (if any) by which he arrives at a successful method of getting it are alike hidden from direct observation, but we can observe and describe the acts which he performs under these circumstances, and we can measure with a stop watch the time it takes for him to solve the problem on the first, second, third, and each successive trial until it has ceased to be a problem and has become a habit.

Naturally, the use of this method implies the conviction that the overt and observable actions which are studied are significant and that, when considered by themselves and apart from other factors which are not susceptible of similar treatment, they constitute a coherent and intelligible body of data. It is not necessary to assume or assert that no other data exist. A chemist would be no better chemist for asserting that a volume of poetry had nothing in it except what he could describe in terms of the chemical composition of its paper and ink. Unquestionably, he can go no farther than that—as chemist. And a chemical treatise on the composition of paper and ink would be cluttered up with irrelevancies and diverted into unprofitable channels if the chemist concerned himself about the poetic form and lyric beauty of what was printed on the paper. The case of a student of behavior is much the same. Loyalty to his own specialty does not require him to insist that there are no realities except those which occupy his attention. In fact, as soon as he begins to define the nature of reality, and set bounds to it, and exclude from it the phenomena of consciousness, he ceases to be a good Behaviorist. He ceases to be a good scientist of any sort, and becomes a speculative philosopher. And, as usual when one practices speculation without realizing it, he practices it very badly.

Genuine Behaviorism is, in fact, not an "ism" at all. It is an "ology." In its legitimate, because truly scientific, aspects, it is a study of a particular body of phenomena, as are the sciences of biology, physiology, and geology. Like them, it cultivates its own field without concerning itself too much about what may be on the other side of the fence, and especially without indulging in any unscientific dogmatisms to the effect that there is nothing on the other side of the fence. As between a scientific Behaviorology (a terrible word, I admit, but a more accurate one than Behaviorism) and a speculative psychism, I would be for the former. That is to say, a scientific study of the conduct of human organisms is worth more than any bare theory about the nature of the psyche.

Behaviorism is not really a form of psychology. At its best it is a supplement to it; at its worst, a substitute for it. At its best it is a study of how bodies work; at its worst, a theory that nothing exists and works except bodies.

The important service which the behavioristic method of investigation renders consists in discovering correlations between those external situations which act as stimuli and the nervous and muscular responses which, in the aggregate, constitute human behavior. Not much progress can be made toward an intelligent control of conduct until there is some understanding of the sequences of natural causes and effects in this field. So long as conduct is thought of as a random succession of acts dependent upon the whims of a wholly undetermined volition, not much can be done about it. We can scold our children, but we can scarcely train them. We can punish crime, but we can scarcely prevent it. We can issue exhortations and emit emotional appeals in behalf of a better life, but the percentage of successful results will be not much greater than it would be if these things were left undone. Any given type of behavior is a skill to be taught, and learned, by the utilization of specific situations which have been shown by experience to be conducive to the desired end; not something which can be inculcated wholly by argument and persuasion.

It is of the utmost importance that this scientific view of conduct be given a larger place in education and in child-training than it has had in the past. There are also wide fields for its application in all sorts of remedial and corrective work, in criminology, in dealing with juvenile delinquents—in short, wherever human beings are to be conditioned to make adequate and satisfactory responses to new aspects of their environment, and wherever they are to be reconditioned so that such responses may be established in place of undesirable ones which they have already acquired. *Human* beings, I said, but the methods are equally applicable to animals other than man—more obviously and completely applicable. Probably no one ever tried to train a dog or a horse without, unconsciously in most cases, making use of the kind of technique which may be refined and perfected by a scientific study of behavior. The greater part of the experimental work of Behaviorists has been done upon animals and young infants, whose behavior seems quite evidently to be just *behavior*. That is to say, with subjects of these two classes it is relatively easy to eliminate from consideration the mental and emotional accompaniments, rudimentary at best, and concentrate upon the coördination between stimulus and physical response.

Behaviorists have rendered a service by insisting that there is more similarity than has been supposed between the processes by which animal and infant activities are determined and those by which adult human actions are determined. Conduct is the sum total of learned reactions to environment. If a child at ten or a youth at sixteen develops objectionable traits, these are not to be accounted for as outcroppings of qualities inherited from a ne'er-do-well grandfather or as spontaneous manifestations of his own willful and unregenerate nature. The child and the youth do what they have learned to do; but they have learned in a school with an extraordinarily large and miscellaneous faculty and a curriculum including many unedifying branches.

Some follies and exaggerations may perhaps be charitably allowed to those who are seeking to impress upon us the indispensable truth that behavior does not just happen at random, and is neither inherited from ancestors nor created out of nothing by the independent fiat of the individual's will, but is produced by definite though intricate causes. To deny the reality of consciousness, to consign thought, emotion, will, and the whole ideational life of man to the limbo of illusion, appears to me to go so far in the direction of madness that it is scarcely possible to believe that the more extreme "metaphysical behaviorists" believe what they say. Perhaps they mean that the phenomena of consciousness do not exist as data which their methods can utilize. In that sense a botanist might deny the existence of the stars and an astronomer ignore the flowers. Passing, for the moment, the question as to what they do mean by such statements, I insist only that no metaphysical folly, no speculative *obiter dicta* in defense of a materialistic scheme of things, need deter us from accepting the valuable insights which Behaviorists have given us and being grateful for them.

There was not much chance of understanding the motions of the stars so long as it was supposed that each one was dragged around its orbit by an angel operating on a flexible time schedule subject to variations dependent upon the pressure of his other business, his impatience to get to the end of his run, or his pleasure in loitering along the moonlit path on a clear night. A science of astronomy could not well start until the element of personal whim had been eliminated from the phenomena which it was proposed to study.

The parallel between the behavior of heavenly bodies and that of human persons is good only if not pressed too far. Argument from analogy is always tricky. Men, women, and babies are (in most cases) neither angels nor stars. There are two defects in the comparison if it is used to support the contention that the study of human behavior may become a science as exact as astronomy so that conduct can be predicted and controlled with precision. One is that man is not all behavior, in the sense in which Behaviorists use the term, and the part of him which is not behavior exercises a strong influence on his behavior. The other is that, even if it could be assumed that men's actions were completely determined by the learned responses of their bodies to physical stimuli, the forces and factors involved are too complicated for exact computation. Considerable industries (such as they are) are based upon the fact that it is not humanly possible to foretell upon what number or color the little ball in a roulette wheel will stop, and yet no one denies that the issue is determined by purely mechanical factors. When one considers that, even if human behavior be viewed as the resultant of objective stimuli acting under rigid law, still it is the resultant of so infinitely many stimuli operating cumulatively from infancy onward, it is obvious that the prediction and control of behavior can never be comparable in simplicity and accuracy to, let us say, rolling a ball down a bowling alley.

In practice, the behavioristic method has been applied chiefly to the study of responses to artificially detached stimuli rather than to total situations as they are found in the complex stream of experience. There is no reason why this should be so, except that it is easier to set up experiments of that sort. But from this source a certain unreality creeps into the results, in spite of the realistic claims that are made; for stimuli never exist detached from a matrix of other stimuli. The vivid and focal point in a stimulating situation is always surrounded by a margin, or fringe, of other circumstances which exercise a considerable, and often perhaps a determining, influence upon the resultant response. If you are pulling a sled by a rope, but a hundred other people are also pulling it in various directions by strings, the resultant movement cannot all be accounted for by the direction and force of the pull on the rope. The pull on the strings might completely neutralize the pull on the rope. Gulliver discovered something of the sort when he found himself effectively pegged down by a web of pack-thread. The Gestalt psychology is an attempt to correct this defect of fictitious simplification in considering responses to artificially isolated stimuli rather than to complete situations. Just what effect this will have upon the methodology of Behavioristic experiment has not yet been determined. It will certainly complicate it, but there is no apparent reason why it should invalidate it.

To say that the understanding and control of conduct involves the recognition of certain mechanisms which have hitherto received less attention than they deserve is very different from saying that the whole process can be viewed as mechanical. It is only by making this distinction that one can fairly credit what is commonly called Behaviorism with its merits and charge it with its defects.

Its merits, as already indicated, lie in the fact that it has not only suggested the possibility of new methods of control through "conditioning" the human organism to make desirable responses to stimuli which would otherwise provoke undesirable responses, but has actually gone a long way toward developing such methods. This concept of "conditioning" is invaluable. Perhaps one ought not to speak of a behavioristic concept, for a concept must exist in consciousness if at all, and if there is no consciousness there cannot be any concepts. It is hard to talk behavioristically all the while. The Behaviorists themselves can't do it. They are constantly using terms which imply the consciousness which they deny. But let that pass. What I mean is that there is great value in that pattern of procedure the characteristic and consequence of which is that one reaction to a given stimulus may be substituted for another, without any appeal to motives or other ideational processes, by relating this given stimulus to another which already produces the desired response. This formula or pattern is immensely important, for it suggests a technique by which, in many cases, it is possible to get people to do things—that is, to control conduct.

The defects of Behaviorism, as it is expounded by its most widely known advocates, may be grouped under three heads: First, behavior is not explicable by reference solely to objective situations physically present at the time of the observed response. Second, no motive for control is provided, and no method for the valuation of any proposed objective of the processes which it sets up. It is this absence of any provision for the recognition of values which constitutes the most obvious and fatal defect of the system when it declares itself independent of all other types of procedure. Third, it easily passes over into a materialistic philosophy which, while no proper part corollary of true behaviorism, often receives the sanction of its spokesmen and the benefit of its prestige.

In the first place, then, behavior cannot be explained or controlled with sole reference to observable physical conditions and the mechanical interplay of physical stimulus and bodily reaction and without taking into consideration the phenomena of consciousness which extreme Behaviorists declare illusory and negligible. It seems obvious enough that this is so, and it would not be necessary to labor the point if the Watsonian type of Behaviorist did not so frequently and so baldly assert that all thought, feeling, purpose, and other activities of what may, tentatively at least, be called mind, must be left out of the picture as irrelevant, incompetent, and immaterial—especially immaterial, for only the material is admitted as real. But when these are left out of the picture, there is no picture left, nor anybody to look at it if there were.

Consider a simple case in which behavior is controlled by factors which are present in consciousness but not in the immediate physical situation. A little after noon. I suddenly remember that I have an appointment at one o'clock, break off the sequence of my routine responses to the stimuli supplied by the books and papers on my desk, and begin to produce a train of behavior not to be accounted for on any mechanistic theory without making assumptions that go so far beyond the boundaries of knowledge that they are less dependable than any metaphysical speculations about the nature of mind. It is raining and cold. Normally I react by way of repulsion to both rain and cold; nevertheless, I go out in them. There is food on my own table, and I have a distinct and positive food-tropism; but I turn away from this immediately available nourishment on the dubious chance of worse food farther off and later on. The company which I can see already assembling at my table is congenial, whereas the man I am to meet is a bore and I know it. Besides, I am well assured from previous experiences with him that he is not going to do anything for me; on the contrary, he will want me to do something for him. Nevertheless, I leave good company for bad and go to keep the appointment. Nothing binds me to this course except a feeling that, having let myself in for it in a moment of weakness, I ought to keep the engagement.

Upon what mechanistic scheme can such behavior be accounted for? Upon none that I can imagine. To say that a prejudice in favor of keeping unfortunate promises is negligible because it can be known only by introspection—that is, not at all by a Behaviorist—is to eliminate the only thing that counts. To make my action in this case merely the mechanical sequence from a set of physiological, and especially neural, processes, is to fall back upon something that is just as invisible and intangible as consciousness itself; for no laboratory scientist has ever seen, isolated, or measured any physical process which is specifically related to the keeping or breaking of promises. To turn away from the series of ideational activities, or acts of consciousness, which seem to have led me to leave food to keep a rendezvous with a pest, and try to account for this unnatural conduct mechanistically, is to turn, not from the unknown to the known, but from the known to the unknown.

The trouble is that a certain class of scientists proceed on the assumption that whatever can be called physical is, *ipso facto*, either known or at least knowable, while everything that is not physical is, in the nature of things, unknowable. So certain Behaviorists have a lovely time making merry over the folly of all who employ such concepts as "soul" or "consciousness." No one has ever touched, seen, heard, tasted, or smelled "consciousness," so consciousness and all its phenomena must be left out of account! Yet there are a number of things that eye hath not seen nor ear heard, which nevertheless command the respectful attention of scientific minds. I asked a group of medical research men the other day how the tendency to longevity in certain families is transmitted from father to son. "O," they said, "that is a unit characteristic." They were quite satisfied with this answer. Though they had never seen or touched a unit characteristic, and never hoped to see one, they were perfectly willing to make use of the concept because, without it, the things they could see and touch did not make sense. Every science is constantly running up against the invisible and imponderable, but most scientists are wise enough not to affirm that reality ceases at the point where their eyesight fails, and some of them have extended the boundaries of their knowledge a considerable distance into the region of the unseen. Still beyond that limit lies an area toward which they maintain an attitude of respectful ignorance.

But not so with the ultra-behaviorists. They not only rule out as unreal those mental phenomena which are the only things in the world of which we do have first-hand knowledge, but they do it by applying tests of reality which would also ruin several other sciences, including physics.

In the second place, the unscientific type of Behaviorism which, in the name of science, rejects consciousness and the whole ideational life of man, finds itself bankrupt for lack of values and motives. Granted that it can give us techniques for the control of conduct. Why should we control conduct? What difference does it make whether conduct is controlled or not? It is true that we ourselves have been conditioned to react unfavorably toward certain types of behavior—for example, lying and theft. It may be possible to recondition the liars and thieves so that they will no longer annoy us by these forms of conduct, and, within limits, we can. But it is a great deal of trouble to do that, and almost everybody reacts unfavorably to trouble. So why bother about it? Why not take the alternative course of reconditioning ourselves so that we will not mind if people do lie and steal? We already have a good start in that direction. There are situations in which these forms of behavior provoke little or no unfavorable response. Some kinds of untruth and peculation are socially approved, such as deceiving an enemy or commandeering his property in time of war. We might extend the range of this tolerance by educating ourselves to react with smiles and other complacent gestures, "manual, verbal, and visceral," toward all lying and theft. In matters of bodily health it is considered unimportant whether malignant bacilli are excluded from the organism or the organism is immunized by conditioning it to such a degree of tolerance that the acts of the bacilli are no longer malignant. If conduct can be equally expressed in terms of stimulus and conditioned reflex, the same should be true in this field.

It is entirely conceivable that certain simple bodily activities, in man as well as in animals, are the result of purely mechanical tropisms, or even that such machine-like responses constitute the raw materials out of which all behavior is made, and it is important to utilize all that can be learned of these mechanisms in our efforts to adjust them to desired ends. But there can be no desired ends if nothing exists except the unconscious mechanisms. What is needed is some body of values and some means of apprehending them. Behaviorism breaks down when you try to get it to answer the question, Why should one do this rather than that? It breaks down not because there is anything the matter with its method for the purpose of investigating those matters to which it is applicable, but because this is a matter to which it is not applicable.

Mr. Watson sums up the Behaviorist's program thus: "The Behaviorist puts the human organism in front of him and says: What can it do? When does it start to do these things? What can it be taught to do? What methods shall society use in teaching it to do these things? With this as subject-matter, psychology connects up immediately with life." Quite so. And it was a connecting link badly needed after all the generations through which the introspectionists had been arguing with observing, guessing at half and multiplying by two, and invoking "instinct" to cover a multitude of mysteries and a mass of ignorance. But the limitations of the procedure which Mr. Watson outlines with such persuasive simplicity are quite obvious. Why should society be interested in teaching the human organism to do "these things" rather than other things? Why should it teach anything at all? Any deliberate effort to change a mode of response is a confession that there are more things in the world than modes of response. "Behaviorism is a natural science that takes the whole field of human adjustments as its own. It is the business of behavioristic psychology to be able to predict and to control human destiny." But again—adjust it to what and control it to what end? Every preference for one unrealized objective rather than another is itself a phenomenon of consciousness rather than of mechanism.

A mechanistic philosophy which eliminates consciousness also eliminates "ought," "wish," "like," and "try." Machines never try. We sometimes speak of them as though they did. We think of an automobile motor as struggling to make the grade. But that is mere anthropomorphism. The motor does not care whether it makes the grade or not. Much less could it conceive an ambition to reach out and teach other motors how they can open their own throttles and make the grade. There is no trying about it for the motor—simply one explosion after another, quite purposeless so far as the motor itself is concerned; and quite purposeless so far as its driver is concerned if this behavior also is simply one explosion after another.

In the third place, Behaviorism has lent itself, quite gratuitously, I think, to a mechanistic and materialistic view of the whole life process. It is not necessary to discuss this at length. Some recent writers who seem at first glance to support this theory do not actually do so. For example, Prof. C. Judson Herrick, in "The Thinking Machine," asserts quite baldly that man is a machine and that thought is a product of machinery. This sounds quite stiff, hard, and mechanical. It suggests the old statement about the brain secreting thought as the liver secretes bile. But as his argument proceeds, he reads into the word "machine" everything that one at first supposed that he was excluding. If we define man as a thinking machine, then we have also defined machine as the kind of entity that can think; and as we have a more intimate and definite knowledge of thought than we have of machines, what we have really done is to refine machines in terms of thought rather than thought in terms of machines.

If we are going to use words in anything approaching their established sense, every machine is a part of a situation larger than itself. It neither makes itself, drives itself, nor places any value upon its own services. Every machine from the simplest to the most complex, from a grubbing hoe to a Hoe printing press, includes three points of contacts with a world outside of itself: a place where power enters, a place where it is guided or controlled, and a place at which it delivers its power or product. No machine has the power of repairing itself, reproducing its kind, adapting itself to novel situations, or having its actions determined by future or physically remote conditions. To say that a structure which does all of these things is a machine, or to say that the whole world is a machine, is to read into the word a meaning which does not belong there. But it is to such devices that one is impelled who undertakes to defend a completely mechanistic scheme of things.

Psychologists of the behavioristic persuasion seem, in their zeal to mechanize completely the patterns of human life, to be in the position of persons who have been in inordinate haste to get on a train which turns out to be going in the wrong direction, or like the traveler who made a dangerous flying leap to catch a ferryboat—which was just coming in instead of going out. The de-mechanizing process is going on in physics as rapidly as the mechanizing trend in this branch of psychology. Perhaps these Behaviorists are only the irresponsible subjects, or victims, of an unconscious tropism which draws them toward mechanistic analogies. Indeed, it must be so if there is no consciousness. But if it is so, they are turning toward a setting sun. There was a time, in the seventeenth and early eighteenth centuries, when men of science were stirred by the hope that the whole universe might soon be explained in terms of a few simple laws of motion and some mathematical formulæ. The development of biology wrecked that naïve hope, and physics itself no longer cherishes the simple delusion—which Newton himself never shared—that Newton's laws, with perhaps a few slight refinements, would explain what God and man is. Says Dampier-Whetham, in the preface to his recent "History of Science": "Meanwhile physics, which for so long sought and found mechanical models of the phenomena observed, seems at last to be in touch with concepts where such models fail, with fundamental things which, in Newton's phrase, 'certainly are not mechanical.'"

I revert to the statement that the scientific study of behavior is not properly an "ism" but an "ology." An "ology" is a branch of science dealing with a particular class of phenomena which, for purposes of convenience and because no one person can study everything, are delimited from other phenomena by whatever frontiers best serve that practical end. It is not necessary that the frontiers be sharply drawn or heavily guarded, and often there is a borderland which is occupied jointly by two or more sciences. Sometimes the border strip of double sovereignty is rather narrow, as that between plants and animals; but botanists and zoölogists do not quarrel violently over the jurisdiction. Sometimes it is so broad a zone that there is room and need for another science to occupy it, as in the cases of biochemistry, astrophysiological psychology. These and all other sciences are "ologies," whether those syllables occur in their names or not.

The science of behavior belongs in the same class. When it studies the phenomena of behavior it is a true science and performs a valuable service. But when it tries to live up to the "ism" in its name, it gets out of bounds as a science and does what all "isms" do—launches into unprofitable speculations as to the nature of ultimate reality. In this field, the expert scientist flounders as an amateur philosopher. It is because so many Behaviorists have done just this, that the real value of their contribution has been obscured.

Every science must presuppose the existence of areas of reality outside of its own special field to give setting and significance to its investigations. The dietitian studies diet, but if nothing existed in the world except diet there would be no need to study it. The economist studies the production, exchange, and consumption of commodities, but these would have no meaning apart from human desires and satisfactions which the economist does not study but takes for granted. The student of behavior can claim no exemption from this general law. Behavior, as a body of objective physical phenomena, has not the slightest significance except as it is related to personal values which cannot be stated, even in the simplest terms, without employing a set of categories of an entirely different order.

VII

BEHAVIORISM'S SILENCE AS TO HUMAN VALUES

BY ROSS L. FINNEY

THE essential characteristic of Behaviorism is its laudable ambition to apply strictly scientific methods in the field of psychology. But precisely from that ambition arises its limitations and mistakes; since there is a radical fallacy involved in the assumptions underlying it. This fallacy is that its blind-spot falls upon certain epistemological fundamentals, and especially upon their implications. For there are *two* sorts of cognition: cognition of *objective* reference, and cognition of *subjective* reference; and of these two only the first furnishes data for science. To the data of *subjective* cognition the assumptions and techniques of objective science do not apply. It is by ignoring certain important implications of this epistemological distinction that the Behaviorists have let themselves in for a somewhat ungrateful disparagement of their good intentions and their contributions.

It should never for a moment be forgotten that epistemological considerations are fundamental to the grammar of science. Probably no single book has been more generally read in recent years by scientists in all fields than Pearson's "A Grammar of Science"; and that book is nothing more nor less than a treatise in epistemology. It treats the question of how objective reality is knowable through and by means of sensory experience, and what postulates are presupposed in the acceptability of sensory experiences as data for science. Of recent months Eddington's "The Nature of the Physical World" has, in some quarters, been hailed as quite the scientific book of the hour; but it, too, is a restatement of epistemological principles set forth a century and a half ago in his "Kritik der reinen Vernunft," by Immanuel Kant, and reiterated in America a generation ago by the Boston philosopher, Borden P. Bowne, in his "Theory of Thought and Knowledge." To imagine that epistemology is irrelevant to the grammar of science is to betray unfamiliarity either with the content, philosophical background, or practical implications of that grammar.

But Karl Pearson's "A Grammar of Science" is only the first volume of what might well have been a two-volume work; the second volume of which must be written and applied before we can hope to clear away the present confusion about the possibilities and limitations of science in the mental-social fields—in fact, before there can ever develop any science, or the equivalent thereof, in those fields. At present the confusion is disconcerting. On the one hand there is the charge that psychology and the social sciences have not yet been reduced to science, with the insinuation that they never can be. On the other hand, there is going forward much eager, zealous work that aspires to be scientific, but with methods, results, and by-products that are too often little short of ludicrous. The insight is now well overdue that this confusion is inherent in the failure to distinguish epistemologically between two wholly different sorts of knowledge. If Behaviorism is contemporaneous psychology in the awkward posture of standing on one foot, it is because of failure to see the implications of this important distinction.

Our argument requires an initial emphasis upon this distinction. There are two sorts of reality—namely, *things* and *values*. There are *objective* entities in time and space, such as sticks, stones, dogs, folks, and so forth; and there are also *subjective* entities in consciousness and feeling, such as fears, likes, appreciations, and the rest. Entities of the second sort are just as real as those of the first. But the one are out there in the world, quite independent of experience; whereas the other have their existence nowhere except within experience itself.

The distinction is clarified by observing that we are equipped with two distinct (though articulated) nervous systems, one for each kind of knowledge. Through the cerebro-spinal nervous system, including the sense organs, we get our knowledge of objective *things;* through our autonomic nervous system we get our knowledge of subjective *values*. And if the difference between these two kinds of knowledge forces nature to provide two different apprehending instruments, so does it likewise challenge scholarship to devise and employ two wholly different techniques of research. For subjective values are not to be studied by the techniques of objective science, any more than they are to be experienced through the cerebro-spinal nervous system.

Now each of these two sorts of knowledge involves different epistemological postulates. Consider first the postulates of objective cognition. What is it that happens when one perceives an object, say a tree? The tree does not enter one's mind. Not even does the image of it do so; to talk such nonsense betrays a naïve attempt to picture the essentially unpicturable. What really happens is that the mind creates an idea within itself, which the mind uses as representing the tree. Here is one of the most awe-inspiring mysteries in nature: how can an *idea within* the mind give us knowledge of a *thing outside* the mind? What proof have we that this "objective reference" of experience is valid? The fact is, we have no proof; we have to *assume* that cognitive experience *is* knowledge. And this is *the first postulate of objective cognition.*

The second postulate is that the object observed is *identical* for all experiencers. And the third is that objective experience which other observers cannot corroborate is but illusion. One is merely "seeing things" if no one else can see them.

Contrast the postulates of *subjective* cognition. When one experiences a feeling or value—*e. g.*, of pain, of gustatory pleasure, or of artistic appreciation—the feeling is definitely thought of as *within* the self. The thing occasioning the feeling may be objectively referred; but that is a wholly different matter. So far as what the *autonomic* nervous system apprehends, there is no objective reference. Thus the first postulate of objective cognition is absent entirely from subjective cognition.

Instead of the second there is something very different. In the case of feelings we postulate nothing more than that they are *similar* in different experiencers. If two persons are pricked with a pin, there are two separate pains, one by each person. Moreover, we have no means of proving that they are even similar pains; that we have to assume.

As for the third, it too is entirely absent; for in the case of subjective cognition verification does not depend at all upon corroboration. A feeling is real for the person experiencing it, no matter whether anybody else ever had a similar feeling or not. If George likes olives (or the Ninth Symphony), that is his business; if John does not, there is no ground for argument. Feelings are strictly solipsistic.

Which prepares us for the implications of these postulates in a so-called grammar of science. The postulates of *objective* cognition are always implicit in scientific research. In other words, data *for science* are conceived in terms of these postulates. A datum is, first, an object of sensory perception; it is, second, a self-identical entity common to all observers; and, third, its reality is verified by agreement among observers. *Things*, on this criterion, are data for science; but *values* are not, because in our knowledge of them these postulates are not implicit. George's feeling of pleasure in olives (or the Ninth Symphony) is not a datum for science because its reality cannot be verified by any other observer; it is an entity only to and for the experiencer, and it exists nowhere except *in* his experience. In short, it is strictly solipsistic; and solipsistic is the exact opposite of that objectivity to which science aspires.

Similarly, there is no such thing as a scientific generalization in the case of values; and just because they are solipsistic. As pointed out above, each person's like or dislike is valid for him. If George likes olives, olives really do taste good to him; and how John feels about olives has nothing to do with the case. So long, therefore, as persons differ about the pleasure of the taste of olives, no generalization about the goodness or badness of the taste of olives is possible; for a scientific generalization carries in its very nature the implication that it imposes itself upon everybody.

In other words, the feelings and evaluations of *subjective* cognition are *not* data for science because they are solipsistic. Which is to arrive by way of the profundities of epistemology at the simplest of propositions—namely, that mere personal feelings are not scientific because they are purely subjective. You cannot make a science out of anything we are so sure of as our own feelings!

With all this it is probable that no one would be in more hearty accord than the Behaviorists themselves; for, as stated at the beginning, their dominating aim and aspiration has been to render psychology strictly scientific. Recognizing quite clearly this distinction between subjective and objective, they have insisted upon devoting themselves exclusively to the study of behavior, because behavior alone is objective. They refuse to interest themselves in thoughts and feelings as such. Behaviorism has no place among its categories for the concept of purpose. It is silent on the subject of values. All these realities are subjective, and hence Behaviorism eschews them as not data for science. Thus, in its zeal to render psychology scientific, it has withdrawn from the field of psychology altogether!

Nevertheless, against Behaviorism *as science* there is no serious criticism to be urged—except when its promoters mistake palpably bad logic for scientific procedure. It is only against Behaviorism *as a cult* that there is ground for complaint. For as a cult Behaviorism unconsciously becomes a philosophy of life, and a very faulty one at that. For it is a philosophy with a blind spot, since it tends not only to ignore as data, but also to repudiate as reality, the whole category of conscious feeling. By so doing its logic maneuvers the thinker into a position where one experience has to be accepted as quite as *good* as another. Thus it leaves neither substance nor method out of which a philosophy of life can be organized. And this is serious; for in the present crash of ancient creeds and clash of novel circumstances there is scarcely anything the age more deeply needs than a new philosophy of human values. Our charge, therefore, against Behaviorism is that it is obstructing one of the most important intellectual tasks of the times. And this it is doing through a logical fallacy in the grammar of its own technique, and by virtue of a prestige inherited from its mother, the old psychology.

The charge against it of being a cult is one that Behaviorism is entitled to have either substantiated or else withdrawn. The following characteristics of the movement are therefore pointed out as cultish. First of all, it is based upon premises that are undemonstrable. In other words, at its foundations is an article of faith. There is a limited extent, to be sure, to which all science is alike in this respect, because of the epistemological postulates always involved in its techniques. But, as pointed out above, the epistemological assumption is a very different matter in the mental-social fields than in the fields of the natural sciences. In the case of Behaviorism the epistemological assumption takes the following unwarranted form: that the techniques of science are applicable to *all* reality; or, conversely, that no reality falls outside the applicability of the scientific technique; or, in other words, that there is and can be no other technique of research than that of objective science. Not only is this assumption undemonstrable, but it is demonstrably untrue, as this paper has made it its central business to point out. To claim for the scientific technique a monopoly of all knowledge-getting processes is *a priori* as to logic, a blind spot of the intellect, and quite as productive of intellectual aberrations as any other cult. It can hardly be too often insisted that there is a radical epistemological fallacy in the primary assumptions of the behavioristic grammar.

In the second place, Behaviorism is fractional and one-sided, and therefore cultish. It has a blind spot. It rides a hobby. In this respect it is like Freudianism, Christian Science, or Socialism. This fault is obvious in its consistent policy of having nothing to do with thought and feeling as data of investigation, a policy which becomes quasi-fanatical when Behaviorists go to the length of repudiating consciousness altogether. To deny that consciousness is datum for science is one thing; to deny its reality is quite another, and palpably absurd. There is nothing more important for scientists in the mental-social field than always to distinguish between the two great kingdoms of reality: things and values. If they elect to limit their researches to the one, that is perhaps their privilege, though it is obviously abandoning their own field; but to repudiate the other as a field of reality for investigation is both absurd and pernicious. Consciousness, thought processes, and feeling constitute a realm of reality that must be, not repudiated and abandoned, but studied by some other technique than the strictly scientific. By its attitude and policy on the matter Behaviorism has withdrawn from the real field of psychology into the fields of physiology and neurology. While adding, therefore, to the sum total of our knowledge about muscles, glands, and nerves, it has been a veritable dog-in-the-manger to psychology proper. And by its disparagement it has actually obstructed such extra-scientific inquiries as might throw light upon the fundamentally desirable values of human experience and aspiration. Its sins, therefore, like those of some other cults, are largely those of omission and disparagement.

Behaviorism is cultish, in the third place, in its insistence upon cramming the facts of life into its preconceived categories. It is like Freudianism in this respect. There is perhaps no better illustration of this than Floyd Allport's elaboration, in the "Social Psychology," of his six prepotent reflexes. By what scientific induction does he know that there are six prepotent reflexes instead of sixty? And what is the reason that, in man, these six prepotent reflexes elaborate themselves into civilization; but into nothing of the sort in the case of the other mammals? For other mammals have the six! But having established his six prepotent reflexes *a priori*, his would-be exact science sometimes degenerates into the sheerest verbalism in its attempt to make the categories explain the facts of behavior. For example, he explains concealment, modesty, and moral shame in terms of the withdrawal reflex (p. 54), cleanliness in terms of the rejection reflex (p. 57), social reform in terms of the struggle reflex (p. 61), sensitiveness to social approval or disapproval in terms of the tickling reflex (p. 69), and maternal affection in terms of the sex reflexes (p. 78). One is prepared to hear his account in all seriousness for the suckers and kickers in adult society in terms of the sucking and kicking reflexes of infants; for that would be not one whit more flagrant a piece of sheer verbal jugglery. The book abounds in just such fallacies. Even his basic distinction between instinct and habit (p. 43) is a mere definition of terms naïvely mistaken for a factual classification of phenomena. A science that mistakes lexicography for research is criticizable as a cult; especially when the enterprise is so obtrusively in evidence of making a preconceived theory consistent with the facts. One is reminded of the old charge against theology, that you can prove anything by the Bible.

Behaviorism is suggestive of a religious cult, in the fourth place, because of its zeal, dogmatism, and intellectual self-righteousness. Of obscure origin, it would hardly have been able to carry off the part; but inheriting, as it was fortunate enough to do, the prestige of our best psychological traditions and academic connections, it has become the intellectual fashion of the day—or at least of yesterday. It seemed for a while almost as if, in psychology, one was in imminent danger of being nothing if not behavioristic; so that the cult spread like any religious epidemic. Such fads, cults, and epidemics are hardly creditable to the fraternity of scientists. A most disconcerting eruption of such phenomena has, the last two or three decades, accompanied the aspiration to scientize the mental-social fields. The antidote may well turn out to be nothing else than our aforesaid distinction between objective and subjective cognition, together with the formulation of an adequate grammar for the treatment of subjective data.

If this sounds like a rather stern criticism of Behaviorism, let it be remembered that we are distinguishing sharply between Behaviorism as science and Behaviorism as cult. It is only as a cult that Behaviorism deserves criticism. As science it deserves the highest praise, not merely for its specific contributions to knowledge, but especially for its insistence upon exact, objective methods wherever such are possible, and, perhaps above all, for the techniques that some of its brilliant promoters have devised. That, of course, will prove, in the sequel, to be its permanent contribution. A cult it will shortly cease to be, no doubt. And perhaps even its cultish aspect may have served to advertise its scientific contribution. And, incidentally, it may be confessed that in this criticism we are using Behaviorism as a sort of scapegoat for the sins and aberrations of the scientific movement in the entire mental-social field.

Returning now to the keynote of this paper—namely, the distinction between phenomena and values—let it be pointed out that values make up what is sometimes called the spiritual side of life. It must be understood, however, that the word "spiritual" is used in a much broader than the merely religious sense, to include all æsthetic, moral, and social values. It seems passing strange that there has always been more or less conflict between the materialistic and the spiritual concepts of human nature. The mechanistic versus the spiritual view of life is, nevertheless, an age-old antagonism; and the present protest of philosophy and religion against Behaviorism is but the current phase of that old issue. But the issue seems gratuitous and needless; one of those debates that is destined to be vacated but never settled, because the very terms in which it is debated are found eventually to be misconceptions.

The conflict arises from the fact that causality and purpose are incommensurate categories, but are not clearly recognized as such. Each has to be thought of, and thought through, without reference to the other. To illustrate: we see the world, and we also hear the world. Each process is quite independent of the other, though we articulate the findings of both processes in our concept of the world. Similarly, we take account of causality, and we take account of purposes. They are independent thought processes, involving differing epistemological postulates. The confusion arises from trying to merge them into a thought system of a single category. The mechanistic activity of an automobile's going forward under its own power figures up to an equivalence of energy, no matter where the automobile goes. The steering gear is a separate system. So with causality and purpose: the mechanistic and the spiritual views of life. Why should the running gear say to the steering gear, What need have I of thee? Conflict arises when the student of casuality goes out of his way to repudiate life's values: or when the student of values gets into the way by setting up the spiritual aspect of life as an ontological entity. Why should the nouns try to push the adjectives out of the sentence; or the adjectives try to set up in business as nouns? What we need is a division of labor: one studies phenomena, another values; one is interested in the means of life, another in the ends; and each with his own technique and methods.

Perhaps this discussion is hardly complete without some intimation of the techniques that are available for knowledge-getting in the field of values. With this —and very briefly presented—the paper will conclude.

At the outset it must be understood that what we mean is knowledge of what other people like or dislike; what the species values. The aim is to rise from one's own solipsistic experience, to a knowledge of what other persons, or people in general, are enjoying or suffering—the only sense in which such knowledge can be objective. It is an attempt, in other words, to discover the general run of human appreciations.

One way to do this is by taking votes. How generally do people like green olives, classical music, or permanent monogamy? Take a vote! One way of taking a vote is by asking them; whereupon you tabulate their "speech reactions," and treat them statistically. Another way is to observe their behavior, noting whether they behave "as if" they did or "as if" they did not. Whereupon you tabulate their "behavior reactions," and treat them statistically. Westermarck's study of the human family is a sample of this technique; through it he establishes the presumption that permanent monogamy is relatively *good* for most normal persons.

But it must be carefully noted that in this technique there are two distinct steps. The first step is *the intuition* of "as-if-ness"; the second step is the technical treatment of the "as-if" phenomena. Only the second is present in objective science. For example: some one is observed, while eating green olives, to make the kind of grimaces which the observer is aware of making himself when he tastes something unpleasant; so the observer infers that the person observed dislikes olives. This is the intuition of "as-if-ness" indispensable to the study of values, but absent from the study of phenomena. The data treated statistically are not, therefore, the *values* under investigation at all, but behavior phenomena that *have been inferred* to be concomitant to and representative of those values. It follows, then, that there is and can be nothing better than an "as-if" science of values. Nevertheless, neither Behaviorism nor any other brand of psychology need disparage such a quasi-scientific science of values.

Be it carefully noted, then, that the intuition of concomitance is the essential step in any study of values; and that this is a mental process as different from the technique of science as swallowing is different from chewing. It follows that as much may sometimes be learned about values by elaborating the intuitions as by elaborating concomitant data scientifically. And the elaboration of intuitions often goes forward by processes that elude formulation or even conscious detection. They are often stimulated, accordingly, by enriching one's acquaintance with life, literature, history, and art. Introspective studies like those of William James, G. Stanley Hall, or Prof. E. B. Titchener are likely to yield as fruitful knowledge in this field as the most elaborate "as-if" procedure. But perhaps most fruitful of all are the sheer insights of intuitive genius, like a Shakespeare or a Balzac. To learn what human beings generally have values there is nothing like summering and wintering with historic personages and their associates, or a generous and sympathetic contemplation of the representative art of great civilizations, or going out and coming in with all sorts and conditions of folks in one's own environment and century. From all such informal, extra-scientific study of human values there is no valid reason why Behaviorism, or any other branch of science, should withhold its approval. And certainly it is as important to be right about the *ends* of life as about the *means* thereof!

VIII

THE USES AND LIMITATIONS OF BEHAVIORISM IN THE SOCIAL SCIENCES

BY CHARLES A. ELLWOOD

"MUCH would-be social science seeks to dodge the mental and emotional processes in which society consists, to circumvent them, find them superfluous, arrive at social truth without them. This is pseudo-science; in the end it will not work; these phenomena are nature; there is no substitute; if we are to have a science, it must advance through them, not around them."[1]

These words, spoken by one of the most penetrating minds in Sociology which America has yet produced, deserve the careful attention and consideration of all students of the Social Sciences. For of recent years there has been a strong tendency in the Social Sciences to reduce them to essentially the same methods as those employed in the physical sciences. This is the effect of Behaviorism in psychology upon the field of social studies—a reaction which has gone so far that Professor Weatherly can say: "At the present moment there is a disposition in some quarters to regard sociology as a physical science also, and to discredit everything which was done in this field before about

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[1] Cooley: "Life and the Student" (Alfred A. Knopf), p. 154.

1900. Human social behavior is to be studied in the same way and for the same ends as the non-human and non-social world."[2]

This tendency is manifest not only in Sociology, but also to a lesser degree in the other social sciences. It is coupled, of course, with an insistence upon quantitative methods, and sometimes with the dogmatic assertion that science as such consists only of quantitative measurements of objective conditions. Naturally those who hold this view find little in the social studies, and especially in Sociology, worthy of consideration if published more than one or two decades back. The strict Behaviorists among social students would exclude entirely from the social sciences all subjective terms and all references to psychic processes whatsoever, except as they may be temporarily tolerated on account of the lack of objective terms for the scientific description of social processes.[3] They hold that only by the gradual exclusion of all subjective terms from the social studies can these disciplines be made true sciences and then only as these disciplines advance in methods of measurement of the processes which they describe. Science, we are told, deals with facts which are verifiable, and only facts which can be observed by many witnesses are verifiable. Only the physical has real existence, and social processes are physical; the use of subjective terms to describe social facts, or any terms which imply mind or consciousness in the processes described, may be of popular and literary value; but it falls short of true science. The social sciences must, therefore, be rewritten in physical, objective terms or symbols, which are at least hypothetically subject to measurement. Some would even go so far as to say that we may judge the scientific character of a textbook in the social studies by the amount of quantitative measurements, in the way of statistics and the like, which it introduces into the description of social processes.

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[2] *Sociology and Social Research*, Vol. XIII, p. 105.

[3] Cf. my paper on "Objectivism in Sociology," *American Journal of Sociology*, Vol. XXII, pp. 289-305.

This is not wholly a new movement in the social sciences, though its revolutionary effects have become visible only within the last decade. Auguste Comte, the father of sociology, has been claimed as the real initiator of the movement, since he asserted that introspection could not be used to gain valid scientific knowledge. Émile Durkheim, a dominant figure in French sociology in the first two decades of this century, also asserted that sociology should be strictly objective in its method; that it must treat social facts as if they were things, and study them apart from conscious individuals.[4] Such objectivism, or behaviorism, in the social sciences, however, made little headway until the work of Pavlov in Russia, with his doctrine of the conditioned reflex, and of John B. Watson in this country, with his doctrine that consciousness can have no place in a scientific description of natural phenomena. Watson and his school claimed that consciousness must be ignored by the natural scientist, as it is not available for observation and verification and cannot be made so. Human behavior must therefore be studied like animal behavior, without appeal to mind or conscious processes.

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[4] Durkheim: "*Les règles de la méthode sociologique,*" 1904.

The inference was of course plain that collective human behavior must be studied in the same way and that so far as the sociologists appealed to ideas, emotions, conscious values, and the like to explain the actions or behavior of groups, they were transgressing the principle of objectivity in scientific description. The seed which the psychological Behaviorists sowed in the field of the social sciences fell upon fertile ground, for a number of leading sociologists had for a generation or more claimed that the great need in sociology was more objectivity in social description and explanation. Economists, political scientists, and historians did not take quite so readily to the new doctrine as sociologists; but of recent years some of these latter also profess conversion to Behaviorism as a scientific doctrine. It has therefore been freely prophesied that the social sciences of the future will be written wholly in objective, behavioristic terms. If this is probable, it is important that all who are interested in the social sciences should know it.

Let us note, first of all, that the social sciences have always preferred objective terminology in the studies which they have made. Almost necessarily this is so, because the social sciences are interested not so much in what goes on in the mind or consciousness of the individual as in objective conditions. When they have appealed to the subjective, they have done so to explain things which were found in the objective social world. For example, the prices of commodities in markets have been explained by the psychological school of economists as due to the subjective value of these commodities to individuals. The concepts of "marginal value" and "marginal utility" as used in economics have been essentially subjective, even though economics as a science is primarily interested in explaining objective economic conditions. Similar statements will hold for anthropology, history, and political science. In the main social studies along these lines have all been dominantly objective and behavioristic. The question is not, therefore, the question of the dominance of the objective point of view in these studies. It is rather the question as to whether we have legitimate scientific grounds in the social studies for introducing subjective terms, or whether they should be excluded altogether.

What has been said implies that the behavioristic approach in social studies was common long before present-day Behaviorism was known. The behavioristic approach to a social problem is, of course, merely an approach from the standpoint of objective behavior, without necessarily excluding all references to conscious processes. As sociologists and other social scientists are interested in institutions and collective behavior, their approach is almost necessarily behavioristic. At least a description of institutions and collective action in purely subjective terms would strike any modern student of the social sciences as out of date, to say the least. All would object to it, even as the most violent anti-behaviorists might object to a purely behavioristic description. The behavioristic approach to social problems is, therefore, no monopoly of the behaviorists, and is to be sharply distinguished from true Behaviorism. However, the social sciences like other social processes are subject to fads and fashions. Behaviorism is now the fashion.[5] Consequently a number of our younger sociologists have appropriated the terms behaviorism and behavioristic, when they are no more entitled to them than some of the very sociologists whom they denounce as "subjectivists."

That Behaviorism, in the strict sense, may be a fruitful method in the social sciences, and hence worthy of development, hardly any student in the field would deny. The only objection which any one has to Behaviorism in the social studies is when it sets itself up as an *adequate* scientific method in itself. Like many other methods it may be valuable, but it is not adequate. The words of Professor Cooley are again appropriate: "The study and measurement of behavior, the outside of life, is a fruitful and promising method, but the idea of a human science consisting wholly of such study, without sympathetic observation of the mind, is, I think, only mystification. Outside and inside, consciousness and behavior, mutually complement and interpret each other. They cannot be disjoined without denaturing both."[6]

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[5] A recent article in a religious periodical by a professor of philosophy goes so far as to identify "Behaviorism" with "functionalism" in psychology, the doctrine that mental processes are inner activities, and therefore concludes that religion has nothing to fear from Behaviorism!

Thus Professor Cooley did not object to a behavioristic method in the social sciences, provided that it realized and acknowledged its limitations, as leaving out that which after all chiefly distinguishes human life from physical processes—namely, "originative mental synthesis." For this reason the method of Behaviorism will never be entirely valid in any section of the social sciences, for it does not do justice to the phenomena it professes to study. The sociologist in particular misses the significantly human phenomena if he leaves out of account the mind of man. The sociologist must make his choice, for reasons which we shall soon see, of worshiping the idol of physical science methods, in order that he may gain the reputation of being strictly scientific, or else he must adopt a method which will do justice to all the facts of human social life.

There are three main reasons why purely behavioristic interpretations of human social life in the sense in which we have explained such interpretations (as in terms of objective stimuli and responses with elimination of all introspection and introspective methods) are inadequate in the social sciences. The *first* reason is that such interpretations or descriptions *do not show the true nature of the human social process,* which is essentially a process of intercommunication. The *second* reason is that *they do not show the true nature of adult human behavior*, which is essentially cultural. The *third* reason is that *they fail go show the true nature of human institutions*, which are essentially based upon values and valuing processes. We shall take up these main objections to the purely behavioristic interpretation of social phenomena in the order in which they have just been stated.

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[6] *Op. cit.*, p. 151.

In the first place, the social process among human beings is essentially a process of mutual adjustment through intercommunication, or the exchange of conscious experiences, by means of articulate speech and other symbols. But this process of intercommunication through words or symbols implies that meanings of either overt actions or subjective psychical processes be conveyed from one mind to another. There can be no intercommunication without "meanings" conveyed from one mind to another. But "meaning" cannot be described in strict physical or behavioristic terms, because it is not a phenomenon which may be observed in any bodily change of which we have knowledge.[7] We do not know whether such exchange of conscious experiences goes on in the world of animal life below man; but we do know that it goes on in the human world; that it is the real content of the process of interaction between human individuals, and the method by which groups of individuals coördinate their actions and act as one in the face of difficulties or obstacles to be overcome.[8]

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[7] Cf. Sorokin, "Contemporary Sociological Theories," p. 624.

Next after the group itself the fundamental category of sociology is "intercommunication," and intercommunication, as we have just said, implies the sharing of certain common subjective states. If group behavior is possible without true intercommunication, it is only possible on the low level of collective reflexes, conditioned or unconditioned, which are shared by a whole group of individuals; but such collective reflexes cannot explain the intelligent, purposive changes which we find in human group behavior. Behaviorism is probably adequate for the interpretation of most group phenomena which we find below the human level, and it is probably adequate also for the lower levels of the behavior of human groups; but to insist that it is adequate to explain all forms of human communication and interaction is, in the light of present evidence, a sheer dogmatism. There is a difference, in other words, between our knowledge of human behavior and our knowledge of the purely physical world. This difference is due to the fact that human beings participate directly in social processes, that they are a part of their immediate experience, in a way in which the processes of physical nature are not. In other words, knowledge of human behavior rests upon a very different level of perception from knowledge of the behavior of purely physical nature.

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[8] Cf. Wright, "The Moral Standards of Democracy," Chap. II (1925).

To quote again Professor Cooley: "If the distinctive trait of spatial knowledge is that it is mensurative, that of social knowledge is, perhaps, that it is dramatic. As the former may be resolved into distinctions among our sensations, and hence among the material objects that condition those sensations, so the latter is based ultimately on perceptions of the intercommunicating behavior of men, and experience of the processes of mind that go with it."[9] Knowledge of the labor problem, for example, he says rightly, is impossible without sympathethic imagination. The physical scientist is not presented with any such situation. Thus knowledge of human society is always both behavioristic and sympathetic; but if we eliminate the sympathetic element in it we reduce the behavioristic element to the non-human level.[10] We have to know human life both outwardly and inwardly to know it completely. The inner conditioning of human behavior by meanings, ideas, and feelings is quite as important as the outer conditioning by physical facts. The subjective is as much a part of the social reality as the objective, if we use these terms in the sense of the inner and the outer. Only pseudo-science, as Professor Cooley has rightly said in the quotation with which we started this paper, could result from any attempt to explain social facts purely in terms of outer or objective conditions.

The Behaviorist usually replies that this is a matter of method, that he does not intend to deny the reality of the inner or subjective, only that he finds no means of reducing it to any form of scientific control, and that therefore social science *as science* is necessarily confined to the observation, description, and measurement of objective behavior. But this is surely an unwarranted position and is practically giving up the possibility of the social sciences, at least as adequate bodies of knowledge to guide us in all human situations. As a matter of fact, introspection of their own minds and of the minds of their associates has always been used by men in guiding them in their practical affairs and conduct. It was only the abuses of introspection by the philosophers of the eighteenth and nineteenth centuries which started the reaction against it, and which led to the dogma that it could have no place or function in obtaining valid scientific knowledge. As Professor Cooley says, "Introspection, however abused by philosophers, is a normal and common process, without which we could know very little about life."[11] To be sure, we all acknowledge that introspection, whether it is the sympathetic introspection of others' minds or reflection upon our own inner experience, should always be checked up, wherever possible, by more objective and impersonal tests. Nevertheless, the fact that we use both sympathetic and self introspection in daily life ought to be adequate proof that, with safeguards, the method of introspection is capable of being used scientifically; for science and scientific method are after all nothing but an extension and refinement of the common-sense methods of daily life. It is curious to note that even Behaviorists themselves, when not in a dogmatic mood, resort to such methods as the personal interview, the questionnaire, and history, all of which imply somethng more than pure Behaviorism, because none of these methods could be used in the scientific study of the behavior of animals below man.

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[9] *American Journal of Sociology*, Vol. XXXII, p. 64.

[10] *Ibid.*, p. 65.

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[11] *American Journal of Sociology*, Vol. XXXII, p. 69.

There is no argument from the nature of scientific method, therefore, for Behaviorism in the social sciences. Science is, after all, nothing but tested, organized, and universalized human experience. Anything which will test knowledge so as to make it reliable and trustworthy in all situations, is entitled to consideration as a possible method of gaining scientific knowledge. The word "science" has unfortunately had too many dogmatisms growing up about it of recent years. In the minds of many science is only that which has been tested by weighing and measuring. Practical experience, however, has discovered many other means of testing facts than through methods of weighing and measuring. For example, the courts of law have always found many other ways of testing facts than through methods of measurement. As long as the judicial spirit and the scientific spirit were recognized as having some remote kinship with one another, we did not have this difficulty of deciding what was scientific and what nonscientific. It was the growth of "orthodox science" with its insistence upon the employment of the methods and point of view of the physical sciences in the study of social phenomena which has given rise to the trouble.

A word is necessary here about the scientific methods which may profitably be employed in social studies. Auguste Comte, the founder of sociology, insisted that the historical method was the principal method to be employed in all the social sciences. Other methods, however, have been added by the students of those sciences which promise to be equally fruitful, such as "the survey method" and "case study." The historical method itself has been resolved into a number of subordinate methods, such as the method of "the participant observer" in which an observer describes for us events and group behavior in which he participates. Obviously a great deal of introspection is involved in such processes. There is nothing corresponding to this method in the physical sciences. The same is to be said about the method of the interview and of the questionnaire, which can tell us much about the social behavior of individuals and groups. "Case Study" is a combination of the historical method, the interview, and the questionnaire, but it is found to be increasingly fruitful. Even the statistical method, which is the chief method of quantitative measurement or analysis of social phenomena, rests largely upon the interview and the questionnaire, and is therefore not to be compared with the quantitative methods employed in the physical sciences.

We see again the truth of Professor Cooley's contention that social knowledge is developed from contact with the minds of other men, through communication, which sets going a process of thought and sentiment in the scientific student similar to theirs and enables him to understand them by sharing their states of mind. There is no doubt that such knowledge is very distinct from the knowledge which we get from physical nature, but it is scarcely less reliable, even though we have as yet no objective yardstick to test and measure it. Cooley is right in saying: "Strictly speaking, there are no yardsticks in social knowledge, no elementary perceptions of distinctively social facts that are so alike in all men, and can be so precisely communicated, that they supply an unquestionable means of description and measurement."[12] Social facts can be known and communicated, however, but not with such precise agreement among observers as to make their decisive measurement possible. Indeed, when we come to study human relations in the practical sense we must again agree with Cooley that the imaginations which people have of one another are "the solid facts of society and that to observe and interpret these must be a chief aim of sociology."[13] The object of sociological study is, therefore, primarily an imagined idea or group of ideas in the mind, and if we are to study social processes we must learn to imagine imaginations. All this is equivalent to saying that subjective processes must be stressed in the study of the social life of man. Indeed, as Professor Faris has said, the subjective aspects of culture and human society alone adequately illuminate the distinctive factors in human association, since images and symbols are the essential material which enter into the formation of social attitudes, and since emotional crises usually accompany the break-up of old habits and the formations of new attitudes and of new human relations.[14]

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[12] *American Journal of Sociology*, Vol. XXXII, p. 67.

[13] "Human Nature and the Social Order," p. 87.

This brings us to the second main objection to a purely behavioristic interpretation of social behavior, and that is, that adult human behavior is essentially cultural. So far as we can discover ordinary adult behavior, and so also the behavior of human groups, is an effect of the culture of the group. This culture consists essentially in a mass of ideas and habits which are transmitted from generation to generation.[15] Even physical nature is ordinarily reacted to by human groups in culturally determined ways. Now the essence of culture is invention, and culture is nothing less than the accumulated mass of inventions and achievements of the group. This means that every element in culture, if analyzed, may be traced back historically to the individual human mind. All culture is, therefore, a product of the human mind, and especially a product of its distinctively human attributes, its powers of imagination and reasoning. The basis of Behaviorism is a crude naturalism, and Behaviorism has thus far shown itself totally unable to deal with the "culturalism," or historical relativism, which is the chief factor in human group behavior.

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[14] Faris: "The Subjective Aspect of Culture," Publications of the American Sociological Society, Vol. XIX, pp. 37-46.

[15] Cf. Wissler, "Man and Culture," p. 3. See also my "Cultural Evolution" (The Century Company, 1927), Chap. I.

It is popularly supposed that the first thing in culture is tool making; but the most careful anthropological research shows that the first element in culture is undoubtedly articulate speech or language. In other words, culture is essentially concept-making and concept-using, and hence also word-making and word-using, since every word is a symbol of a concept. So far as we know there is nothing approaching this use of symbols in the animal world below man, and even if there were, it would in no degree lessen the importance of the fact that man makes use, first of all, of the concept and of the spoken word as his chief social tools. Indeed, physical tools seem to be nothing but the objectification of concepts or mental patterns. So far as the anthropologist can determine, the most primitive tools seem to have been made with a pattern in the mind of the maker, and to have been therefore, in one sense, as rationalistically designed as the most complex modern machinery. Introspection furnishes us knowledge of these concepts or mental patterns, and to some extent indicates even the processes of their origin; but Behaviorism throws no light upon the nature of the concept except to say that it is accompanied by verbal behavior or a vocal gesture.

The whole structure of human culture, which includes not only language and physical tools, but all human institutions, government, morals, religion, art, and science, Behaviorism is powerless to help us to understand, except as a series of conditioned reflexes which have arisen in some mysterious way through changes in the environment. It is no wonder that Professor Cooley spoke of such interpretation as mere "mystification." It obviously leaves out the distinctive thing in human society which has made culture possible, and that is creative mental synthesis. This is of course but another name for mental invention, and so far as we can get any light upon the process it is largely through introspective analysis. We find, to be sure, intelligent adaptations and adjustments in the animal levels below man; and sometimes in the higher animals these adjustments faintly foreshadow human inventions. But they seem to be the result mainly of muscular exploration and effort, and there is no evidence that they are the result of performing imaginative experiments in the mind and of creative mental synthesis. Through his power of abstraction and calculation man builds up new patterns which he symbolizes in words and objectifies in tools and institutions. The subjective aspects of invention in man's case seem to be more important than its objective aspects. It is because the human mind is creative that it is the mother of inventions, and so of culture. But the Behaviorist calmly ignores the creativeness of the human mind and attempts to describe human society in the same terms in which he would describe a colony of rats. The Behaviorist forgets that rats do not have culture in the sense in which we have just described it, and are not men.

The making of inventions and the diffusion of inventions in human groups is obviously a process of learning by individuals and groups. We have no right to believe that the process of learning can be reduced merely to a conditioning of reflexes. We know that in human beings meanings and imagination play a part. Moreover, in the inventive mind creative synthesis plays a decisive part. Practically everything in the process of learning is missed by the Behaviorist except the modification of habits or reflexes. If it be said that this is the important thing, it must be replied that other things, such as sympathy and understanding, are equally important when it comes to human relations. The subjective aspects of culture, indeed, as we have already said, loom larger than its objective aspects.

Now, the human sciences will more and more in the future come to center their attention upon culture as the distinctively human thing in man's social life and the basis for man's further progress and development. Culture in all of its aspects will become the center of scientific attention and the subject matter of a group of sciences, the sciences of culture, which will repudiate the method of the physical sciences, and so a merely behavioristic method, as adequate for their purpose. Moreover, among the phases of culture the non-material, or "spiritual," are the most distinctively human, and therefore they will receive the special attention of the social sciences as the phases of culture which are bound to be most important to humanity. In this way the whole field of relative standards, values, and ideals in human relations, which Behaviorism refuses to deal with, will become objects of scientific study and scientific determination.

This brings us to the third main reason why purely behavioristic descriptions and interpretations must fall short of scientific adequacy in the social sciences; and that is that they fail to show the true nature of human institutions, which are essentially based upon values and valuing processes. Sumner said that human institutions involve both structures and concepts. This expression shows that he was far from a Behaviorist; but he should have added that human institutions also always involve values. This, however, is plainly implied in his doctrine that institutions grow out of the *mores*, and that the *mores* are habits or customs considered important for social welfare. Every institution, therefore, involves values which the community has reflected upon and approved. Hence it is that the special sciences of institutions, such as economics, political science, and ethics, all in one way or another deal with different sets of values. The social life of man is a life of values in practically all of its phases. It is made possible, as we have seen, only through the exchange of conscious experiences between individuals. Any study of human society except in the most superficial terms must necessarily take the valuations of individuals and of groups into account. Any type of Behaviorism which fails to take into account these valuations of individuals and groups becomes mere social description. Whether the social sciences treat of markets, of governments, or of religion, if they enter upon the work of explanation, they find themselves forced to treat of these phases of culture in terms of values. Even the very quantitative measurements which they attempt are very largely measurements of values. This is so even of the social sciences which deal with the physical aspects of man's collective existence. Take the sciences of health, for example. Health is obviously a value. The sciences which deal with health and disease have not hesitated to evaluate conditions of living as regards health. This has enabled whole communities to increase their standards of health and prolong life. Scientific knowledge, in other words, has shown dangers to health, on one hand, and pathways to health and safety, on the other. Quantitative measurements have, of course, helped much here, as in the case of economics; but this should not obscure to us the fact that such sciences as hygiene and sanitation deal with human values, and that therefore even such sciences have a large subjective aspect, since value is a creation of the human mind and attaches to situations and objects because of some fundamental human desire. If this is so regarding the material aspects of culture, it is much more so regarding such non-material aspects as the family, the state, art, morals, and religion. Behaviorism is particularly inadequate to deal with these non-material aspects of culture, though they are the most distinctively human and the most significant socially.

Certain minor objections to a purely behavioristic method in the social sciences may now be briefly noted. The first of these we have already touched upon, and that is that Behaviorism offers no adequate basis for dealing scientifically with the non-material aspects of culture, such as religion. Many of us still believe that a science of religion is one of the greatest desiderata in the field of the human sciences; that such a science would be a great aid in the development of rational religion and so also a great aid in the development of human culture. Now the pure objectivist in the social sciences either denies that such a science is possible, or would hold that it is possible only regarding objective religious behavior, such as ritual and ceremonial, and not regarding religious beliefs and values, unless these latter are regarded as mere accompaniments of the former without scientific significance. The phenomena of most significance in religion, however, are not ritual and ceremonial, but beliefs and values; and we have every reason to believe that it is these purely subjective aspects of religion which are most significant for the social life generally. Moreover, these purely subjective aspects lend themselves to historical as well as introspective treatment. Not only may they be brought within the realm of tested knowledge, but it is not difficult to make correlations between them and objective facts in culture.

We have already insisted that the most fruitful development of the social sciences in the future will probably come through the study of the non-material aspects of culture; but pure Behaviorism would bar the way to such study.

A second minor objection to a purely behavioristic method in the social sciences is that it must be based upon some metaphysical dogmatism, or philosophical standpoint dogmatically held. In brief, it must be based either upon a materialistic philosophy that only the physical exists or upon a rigid psycho-physical parallelism. Pure Behaviorism may possibly be interpreted in other philosophical terms; but in any case, if it claims adequacy, it must adhere to some dogmatic viewpoint. It does not preserve the experimental attitude in the matter of scientific methodology. It regards scientific method as absolutely fixed and settled. Even if it secured more adequate results, it would put a bar to further development in both psychology and sociology. It is indeed a hangover from the conception of science and of scientific method which was developed in the nineteenth century. The Behaviorists seem unaware that they are traditionalists in science and scientific method. They represent in the human sciences a traditionalistic attitude carried over from the physical sciences, and they seem to hold that the nature of science is not simply that it is tested knowledge, but that it is a special kind of interpretation—namely, an interpretation in terms of mechanistic sequences. The philosophical assumption of Behaviorism is that mechanism of a rigid sort pervades all nature and is an adequate explanation of what occurs even in human behavior. Just as the physical sciences seem about to give up a rigid mechanistic determinism, the Behaviorists are trying to introduce it into the social sciences. Can we doubt that they are the victims of an orthodoxy in scientific method, and that they may well be likened to the fundamentalists in religion?

The outside and the inside of human life mutually complement and explain each other. "The study of external behavior as a thing by itself must, in the human field, be as barren," Professor Cooley has well said, "as mere introspection and for much the same reason—namely, that it isolates one aspect of a natural process from another."[16] It is of course comparable in biology to the dualism sometimes made in that science between environment and heredity. The sane biologist makes equal use of both environment and heredity in explaining the organism and its behavior. So, too, it is safe to say that a sane sociology will make use of both inner conditioning and outer conditioning in interpreting the behavior of individuals and groups. There is no justification in scientific methodology for the attempt to ignore or belittle either set of conditions. The pure objectivist is attempting the old trick of over-simplification in the social sciences. He has no right upon the basis of some scientific or philosophical tradition to attempt such over-simplification in the name of science; for science is a movement toward knowledge of all reality, and not a particular view of reality from some one given angle. If it is, it will be discredited in the minds of common-sense people.

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[16] *American Journal of Sociology*, Vol. XXXII, p. 70.

We come now to the last minor objection which we wish to make against the behavioristic method, and that is, it results in stating processes in language which is without meaning to all save the few initiated. I cannot but feel that this is peculiarly unfortunate in the social sciences. They should be kept as free from jargon as possible. The social sciences can never be of much utility until their conclusions are accepted and acted upon by the mass of common men. This does not mean that the conclusions of those sciences must be stated in purely objective and quantitative terms. On the contrary, that results in mystification, as Cooley has said, for the ordinary man. No doubt we need more exact results and better scholarship in the social sciences. We need also liberation from outworn theological and metaphysical assumptions. But it will be a great loss to the social sciences if ever they come to be stated in language which is meaningless to the person of average intelligence. Cooley is again right that the social studies involve a dramatic element because they concern man. We cannot cancel out this element, which involves sympathy and the interpretation of conscious experience, without making the social sciences meaningless to the average man.

All science surely exists as a control over nature and human behavior. The attitude of science must be pragmatic rather than dogmatic. It must welcome everything which will throw light upon the nature of social reality. The opponents of Behaviorism should not be so dogmatic that they are unwilling to see and welcome the light which the study of external behavior throws upon social conditions. On the other hand, the advocates of behavioristic method also should not be so dogmatic that they are unwilling to see the light which the knowledge of ideas, emotions, values, desires, and interests, when these processes prevail in human groups, throws upon social processes and collective behavior. Truth lies not in a compromise between these two methods, but in a synthesis of their insights. When both parties in this controversy will lay aside dogmatic attitudes and be willing to see the value in the contribution of each, we shall be in a fair way to develop a synthetic method in the social sciences which will place them alongside of the physical sciences as deserving of the respect and confidence of the mass of mankind. It is a hopeful sign, perhaps, that the most scientific survey of an American community yet carried out, that of "Middletown," does not despise the study of the beliefs, opinions, ideals, and values of the population, but places the study of these as of equal scientific worth alongside of the description of external social conditions and behavior. The social scientist, we may conclude, cannot afford to be labeled either as "objectivistic" or as "subjectivistic." He cannot satisfy either extreme party, as his business is to report the total social reality.

IX

BEHAVIORISM AND CHARACTER

BY JAMES SEEHORN SENEKER

In accepting the invitation to write on some phase of extreme "Behaviorism of the Watsonian type" the author has attempted a fair and reasonable interpretation of the situation confronting us when extreme Behaviorism is examined in the light of the present thinking of reputable psychologists.

At the outset the author confesses a glowing, friendly interest in vital religion and faith in its significance in character formation. We think of character at its best as being religious; that is, we consider religion essential in the growth and development of the highest type of character. Recent assaults upon the actual existence of religion seem to indicate in the end that the human spirit is as deathlessly wedded to it to-day as at any previous time; yet some current plans of character education minimize, ignore, or deny the significance of religion as a factor in character education.

As we enter the estate of Behaviorism we are greeted by the sight of a house divided against itself; for not only do we find disagreement among those who call themselves Behaviorists, but also its American founder, Dr. John B. Watson, has confused an objective method with a philosophy or metaphysics. This condition at once sets for us the task of outlining briefly what is meant by Behaviorism.

The "reflex" and the "conditioned reflex" or "conditioned response" are the two concepts which lie at the foundation of Behaviorism. Extreme Behaviorism denies all mental life, including conscious, purposive experience; advances the conception of character as a quantum of conduct responses or habits which are conceived as mechanical; and speaks of stimulus and response as entities. It asserts that training and environment are virtually omnipotent and that biological inheritance has no part in determining what an individual is or may become. According to Watson, character is determined entirely by training. The above enumerates briefly the representative points of Behaviorism.[1]

While Watson classifies human responses under four general heads—first, explicit habit responses; second, implicit habit responses or thinking; third, explicit hereditary responses or instincts; fourth, implicit hereditary responses, including ductless gland secretions, etc.—yet for simplicity he reduces them to reflex or instinctive, hereditary responses on the one hand and conditioned or acquired responses—habit systems—on the other hand.

What is a *reflex?* It is the simplest "inborn" action tendency, such as the involuntary winking of the eye, the knee jerk, or the involuntary contracting of the pupil of the eye when suddenly flooded with bright light. Simple responses also are called reflexes. Thus we see that a reflex, according to Watson, is the simplest, most elemental *component* of human behavior. He speaks of a reflex as a distinct *entity* which is quite mechanical and of an instinct as composed of a chain of reflexes. More complex responses which are acquired rather than instinctive are also said to be composed of chains of reflexes. Later we shall indicate the fallacy of viewing reflexes as separate entities.

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[1] See John B. Watson, "Psychology from the Standpoint of a Behaviorist" (second edition; Philadelphia: J. B. Lippincott, 1924).

What is a *conditioned reflex?* The principle is simply that of training an animal or person until he habitually makes a second response B, which he has been trained to make, instead of a primary response A. In psychology the classical illustration of a conditioned reflex is of Pavlov training his dog as follows: first, he showed the dog a piece of meat; second, the animal's mouth flowed with saliva; third, he showed the meat and rang a bell at the same instant; fourth, saliva flowed as usual; fifth, this was repeated until, sixth, the ringing of the bell alone caused the flow of saliva—*i. e.*, the response which was first made to the meat, through association, became attached to the sound of the bell. Thus the dog was trained to secrete saliva at the sound of a bell, whereas at first the sight of the meat evoked the response of the salivary glands. That is, the ringing of the bell by being associated with the sight of meat evoked the response originally connected with the sight of the meat. To illustrate the *conditioning* of a child a single instance indicates how he was trained to fear a rabbit which he did not fear in the beginning. First, a rabbit was presented to the child, to which, second, he responded by reaching for it (unafraid); third, the rabbit was presented again and at the same time a loud noise was made of which the child was afraid; fourth, he cried and drew back (a fear response); fifth, this was repeated until, sixth, he made the fear response regularly at the sight of the rabbit alone. Thus we see how a child can be trained to make a fear response instead of an initial response of the opposite sort; that is, through association a primary response is displaced by a secondary. In this case the second or learned response is called a *conditioned reflex* or conditioned response and is automatic and unthinking. Any response resulting from an associated stimulus is called a conditioned reflex.[2] Undeniably it is training or conditioning. But is it education? It is an admirable principle for purposes of habituation.

The present situation in psychology is unprecedented as to varieties, and as a protest to this nebulous condition comes Behaviorism, likewise with its many varieties. We are concerned particularly with extreme or radical, mechanistic Behaviorism typically depicted in the writings of its American founder. The position of extreme or radical behaviorism may be glimpsed in some of his own statements; for example, he says: "Behaviorism, first showing its head in 1912, attempted to make a fresh, clean start in psychology, breaking both with current theories and with traditional concepts and terminology."[3]

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[2] Meticulous distinction relating to associated or "substitute stimulus" and "substitute response" is not attempted, since the latter implies the former.

In this connection it is proper to indicate that behavioristic interpretations long antedate the name and work of the founder of the movement or school called Behaviorism. For example, Democritus, a Greek philosopher who lived about 400-357 B. C., propounded an atomic theory and held that all events are mechanically explicable; Descartes (1596-1650), a French philosopher and mathematician, considered animals as machines; Herbert Spencer (1820-1903), an English philosopher and exponent of organic and social evolution, held that human conduct could be explained on the basis of compound reflexes; likewise biologists such as Jacques Loeb and Bechterew have held similar views. Hence it appears that Behaviorism is simply a traditional, mechanistic view under a new name.

Its uniqueness lies in neither its method nor its philosophy, but in its denying and ignoring all other aspects and interpretations of human life, including mental and spiritual phases. Its chief protagonist declares: "The Behaviorist finds no evidence for 'mental existences' or 'mental processes' of any kind."[4] Yet psychologists have long maintained not only the fact of mental life, but also that it presents the effect of past behavior and the condition of future behavior.

Behaviorism is not alone in using objective methods of experimenting and investigating, for many experiments of this objective sort have been completed, both prior and subsequent to Behaviorism, by others than Behaviorists. Much of its notoriety lies not primarily in the fact that it is an objective method which, as noted, is not peculiar to it, but more especially in that it is a mechanistic philosophy. It is not only a scientific method, but also a crusading shibboleth which seeks to banish mental life and moral and spiritual interpretations. Religious dogmatism seems to be outdistanced by the ex-cathedra statements of Behaviorism as it denies mental life; strivings, aspirations, and hopes; imaginative, purposive action and the like. Later we shall indicate how these are significant in character formation. Behaviorism is wise in beginning its sweeping denial with consciousness, since to admit *it* would open the way for wishes, purposes, and the like.

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[3] "Psychology from the Standpoint of a Behaviorist," p. 4.

[4] *Ibid.*, p. 2, footnote.

In the realm of character, humanity has been concerned long with the intent or purpose evidenced in action. From time immemorial not only religionists and educators, but also magistrates and courts of law, have insisted on the significance of the underlying something called intent, for humans are interested not only in behavior, but also in goal-seeking, striving, aspiring behavior. People inquire not only about a given act, but also concerning the motive of the actor. Even white rats are credited with striving for food at the end of the experimenter's maze. Yet man rises above the level of mere trial and error striving to that of conscious, deliberative, purposeful[5] action, which we shall discuss later. In practice all Behaviorists employ the concept of goal-seeking in experimenting and in describing the same. It is a bit disconcerting in reading Watson's statements to see him inadvertently or surreptitiously bringing in through the back door under a new name that which he had thrown out at the front door under another name. Is it, then, at all surprising to find that many reputable psychologists are contesting the ground of Behaviorism?

Of the reputable psychologists who employ objective methods advocated by Behaviorists, and who are contesting the contentions of Behaviorism, we mention such men as E. L. Thorndike, Kurt Koffka, Wolfgang Köhler, and A. A. Roback. Others could be named. We are not concerned to expound or champion their views, but it is significant that Thorndike uses a thoroughly objective method and yet retains the mentalist concept. The same is true of Gestalt psychologists Koffka and Köhler.

Roback has written an extensive treatise indicating that the objective method is a helpful, yet not the only, method in human psychology. Among various errors of Behaviorism he suggests that the name is a misnomer, since the suffix "ism" implies a movement or theory[6] rather than an objective method; that mentalist assumptions have been verified repeatedly;[7] that employing the concept *habit* to such widely varying phenomena is not in keeping with scientific procedure;[8] that there is no agreement among behaviorists as to what constitutes a case of Behaviorism, since one lodges it in the nervous system, another in the actions of muscles and glands, while still others stress grosser movements as essential; and, that the verbal report of a person concerning certain bodily conditions, as pain, furnish data not obtainable through behavioristic methods alone.[9] These samples, selected at random, indicate that the claims of Behaviorism are freely contested within the estate of psychology itself.

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[5] The term "purposeful" as used by this writer designates conscious seeking of ends-in-view, while "purposive" implies any type of behavior to which goal-seeking or purpose may be attributed even though not present to, in the sense of foreseen by, the creature or organ concerned. In the latter sense one may say that the purpose of the stomach is to digest food. Obviously the stomach has no purpose even though one may attribute purpose to its functioning.

It is quite natural that the psychological breakdown of the old compartmentized, trait-centered conception of character should appear concurrently with the relapse and weakening, in the field of psychology, of the attempt of radical Behaviorism to revive and extend materialistic, mechanical interpretations of life. They are complemental aspects of the same mechanistic point of view. Reflexes and conditioned reflexes are the basic concepts of Behaviorism, while conduct assignments and trait actions are fundamental concepts in teaching separate, compartmentized traits or virtues, even to the neglect of virtue. In 1911 Dr. Coe clearly distinguished between virtue and compartmentized virtues in an article on "Virtue and the Virtues."[10]

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[6] A. A. Roback: "Behaviorism and Psychology" (Cambridge: University Bookstore, Inc., 1923), p. 200.

[7] *Ibid.*, p. 143. [8] *Ibid.*, p. 147. [9] *Ibid.*, p. 151.

Behaviorism conceives of character as a quantum of conduct responses or habit systems which are quite mechanical. This view resembles the old disciplinary theory of character formation in the respect that repetition is regarded as sufficient to establish any desired response, regardless of whether or not it is satisfying.

As opposed to Behaviorism's concept of character we think of it in terms of purposeful and effective functioning through social participation. The recent studies by Hartshorne and May[11] have materially aided in more firmly establishing this view of character as a function of the total situation which we now outline briefly.

Character roots back in the primary tendency of life which is to function. According to Gestalt psychologists, action tendencies configurate toward ends, closures, or goals. Purposeful action advances further by consciously directing activities toward foreseen, desired ends or goals. That is, action tendencies guided by purposeful effort constitute the basis of character. Mere repetition does not guarantee the continuance of an act. Only such acts as are satisfying tend to become habitual, to persist. Again, those activities which "lead on" in largest measure, according to Dr. W. H. Kilpatrick, are most fruitful in character formation. But moral character is not possible until there is added to the above the disposition and practice socially and sacrificially sharing with others. Intelligent, whole-hearted purpose enables a person or group to lift the activities of daily living out of the realm of mere routine into the realm of meaningful social functioning. But this is possible only in and through the *actual process* of purposeful social functioning, since purpose can exist and have meaning only in connection with activities. For example, a small child realizes the meaning and joy of working with and for others only as he joins whole-heartedly with them in those activities which enrich the common life—such as shelling peas, washing dishes, and choosing flowers for daddy's or mother's birthday celebration.

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[10] George A. Coe: Proceedings of N. E. A. 1911, pp. 419-425, and *Religious Education*, Vol. VI, pp. 485-492.

[11] "Studies in Deceit" (New York: The Macmillan Company, 1928).

These activities and experiences can be made more meaningful by discussing their significance in the presence of all concerned, with adults taking the lead as the more experienced members of the group, but not as autocrats. These discussions, together with grace at table and other worship experiences, enable children and adults to realize the religious significance of many otherwise routine activities of the daily round. Indeed, such discussions and religious experiences are essential in deepening and extending these meanings. Overt activities alone are incomplete. This conception of achieved character as specific to given situations stands in marked contrast with "conditioning" through mechanical response. The latter is inadequate for social functioning and resulting personal development. Hartshorne and May say: "Our conclusion, then, is that an individual's honesty or dishonesty consists of a series of acts and attitudes to which these descriptive terms apply. The consistency with which he is honest or dishonest is a function of the situations in which he is placed in so far as (1) these situations have common elements, (2) he has learned to be honest or dishonest in them, and (3) he has become aware of their honest or dishonest implications or consequences."[12]

Constructive social functioning is synonymous with becoming the highest type of person possible and in turn necessitates constructive social reconstruction and social welfare.

The chief reason for rejecting the theory of traits or virtues lies in the fact that they have been shown to have no psychological justification. They are simply names for the classification of acts rather than separate realities. The view of character here presented places in the forefront virtue as unified achievement and consists in the attitudes, dispositions, and practices which are revealed in the reasonably consistent functioning or embodiment of ideals.

While character and conduct may be viewed both personally and socially, yet in the end each is a personal affair however much each is socially conditioned. On the one hand, character, the more abstract, general term, is the by-product, not of action as Behaviorism asserts, but of one's loyal actions. That is, character is a by-product of one's loyalties. The distinction is important. Charles Dickens probably sensed this in his portrayal of the old Jew who strove, without success, to bind Oliver Twist in loyalty to activities in which he was forced to engage. On the other hand, we have seen that conduct, which is central in character formation, always is specific, definite, definable in relation to particular situations. We agree with Symonds[13] that more attention should be given to confacts—that is, conduct responses—rather than so largely to concepts. Why? Because satisfying habitual response rather than ideation is the first concern in character development, although the latter is important. Character not only results from guiding and refining action tendencies, but also follows certain ideals. With us these ideals are Christian. Society constantly supplies one sort or another of guiding action patterns, ideas, and ideals in the form of customs, cultures, and the like, which are powerful social forces because of the pressure exerted through social expectations, approvals, and disapprovals which are more powerful than abstract ideas in shaping conduct and character. Thus it turns out that since conduct is specific it can be aimed at directly, while character being abstract can be aimed at indirectly only; that is, through the specific guidance of conduct. For concreteness, then, more attention should be given to conduct.

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[12] *Op. cit.*, Book I, p. 380.

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[13] Percival M. Symonds: "The Nature of Conduct" (New York: The Macmillan Company, 1928), p. 167.

The upshot of this whole discussion brings us to a consideration of whether or not "whole-hearted," intelligent, purposeful control of conduct is possible in a world such as ours. What kind of world is this? Static or dynamic? Mechanistic or otherwise? Do life and human nature belie, allow, or compel spiritual hypotheses and interpretations? This is our next consideration.

In a more detailed inquiry into the incongruity of Behaviorism questions emerge concerning the character of our world and of the human materials with which we are dealing. To-day all life is regarded as in process, proceeding according to cause and effect, antecedence and consequence, with energy and organization characterizing the process. Like begets like. There are discoverable, workable laws upon which we may as reasonably rely in matters of conduct and character as in the growth of plant and animal life. There is this notable difference, however, in dealing with human beings, that every normal individual manifests aptitudes for self-direction. Thus every individual is not only a social product, but also plays a significant part in modifying the group or groups to which he belongs as well as in fashioning his own life.

This brings us to the consideration of the problem of human nature. What is the character of human nature with which both religion and education must deal? Is it inherently good or bad? Is it pliable or fixed and set to definite ends? Does man change, grow, become, or does he so unfold that if a person gets the beginning of the thread as it starts to unwind he knows what the final outcome "is bound to be"? Has man plastic aptitudes or fixed, predetermined tendencies? Again, is it possible to *make* any individual become the kind of person desired through training alone? The answer is that casual observation and controlled experiment alike indicate that among the tendencies of the original tendencies is that of self-criticism with a view to improvement[14] and also that of moving in the direction of creating a certain kind of desired self and society.[15] Man changes, grows, becomes through experiences and learnings, thus enriching both self and society. The limitations to development seem to be on the side of desires, convictions, determinations, and the like as much as, if not more than, on the side of inborn tendencies. This suggests inquiry into the nature and meaning of heredity and environment.

Are conduct and character limited by biological inheritance? If so, to what extent? Psychologists, educators, religionists, and plain folk alike have maintained and still insist that both biological heredity and environment are important in education and character building. Extremists, depending upon their particular point of view and interest, tend to minimize or deny the importance of one or the other. The *exact significance* of each is unknown, but it appears that most authorities continue to regard both as important. Nevertheless, Behaviorism asserts that any "healthy," "well-formed" infant can be developed, through training alone, into any sort of person desired. Indeed, the leader of Behaviorism "guarantees" to do it. Lest we seem to misrepresent his position in this matter, we cite the following statement: "I should like to go one step further now and say, 'Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief, and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors.' I am going beyond my facts and I admit it, but so have the advocates of the contrary, and they have been doing it for many thousands of years."[16] He convicts himself when he admits going beyond his facts regardless of what the "advocates of the contrary" do.

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[14] E. L. Thorndike: "Educational Psychology" (New York: Teachers' College, 1913), passim.

[15] George A. Coe: "A Social Theory of Religious Education" (New York: Scribner's, 1917), p. 135.

What does the objective evidence on this whole problem indicate? Various studies of delinquent individuals and of exceptional and subnormal families indicate that heredity is a powerful factor in determining character.[17] May and Hartshorne[18] found that types of conduct, such as cheating on classroom examinations, run in families. Why is this true? That has not yet been determined fully. Perhaps it is due to heredity, training, and example. Constitutional weaknesses, which undeniably are heritable, inducing low resistance to "temptations," may partially explain it. But character itself is never inherited. Only "predisposing tendencies" can be passed on through the germ plasm to offspring. Hartshorne and May conclude that deception in school in the types of situations studied by them is due to both heredity and environment. They say: "The concomitants of deceit are, in order of their importance, (1) classroom association; (2) general personal handicaps, such as relatively low IQ, poor resistance to suggestion, and emotional instability; (3) cultural and social limitations in the home background; and (4) such other miscellaneous facts as are loosely correlated with deception."[19]

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[16] John B. Watson: "Behaviorism" (New York: W. W. Norton and Company, Inc., 1925), p. 82.

[17] Cyril Burt: "The Young Delinquent" (New York: D. Appleton and Company, 1925).

[18] "Sibling Resemblance in Deception," The Twenty-Seventh Yearbook of the National Society for the Study of Education

Summarizing, we see it is quite generally held that a person's biological inheritance determines the limits within which character can develop; that environment, cultural inheritance, and training determine the particular direction along which development moves; that is, the foundation of character is a matter of blood as well as of environment and education. Biological inheritance furnishes the basis, sets the limits of

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(Bloomington, Ill.: Public School Publishing Co., 1928), Part II, pp. 161-177.

[19] "Studies in Deceit," Book I, p. 412.

character development. Paradoxically speaking: no amount of education can develop an individual beyond the possibilities latent in his inherited tendencies and aptitudes. It is a contradiction to speak of developing that which is nil. Conversely, action tendencies have no significance apart from situations in which to act. That is, tendencies, aptitudes, or "susceptibilities," popularly speaking, are inherited and set the limits within which conduct and character can develop. Precisely what these limits are we do not know. Further investigation may reveal them and, on the other hand, we may never know them. But of this we are assured: no one is virtuous or vicious by nature, for conduct and character are achieved rather than inherited, imposed, or conferred.

An ancient maxim declares that out of the heart are the issues of life. Behaviorism insists that out of the uncertain depths of stimulus and response are the issues of life.

Stimulus and response *resemble* mechanism in certain routine activities, such as breathing, walking, feeding, and the like. The debate on how many responses of the human organism are inherited and how many are acquired we do not enter. Doubtless most responses are acquired, achieved, built up, "and are the result of organization."[20] But however generous we may be toward so-called mechanism, it lacks much often compassing all of human life, since many movements are not responses to stimuli. For example, in many new and especially confusing situations an individual is unable to respond simply because there is no ready response, for stimulus and response imply established relations, existing organization, actual integration. But a person may be doubtful of the precise locus and nature of a stimulus! In such cases habit and mechanism combined do not suffice. Only after much blundering and trial and error and imaginatively trying out various "cues" or prospective acts does he "hit upon" the proper response. Then the difficulty is resolved. Until that point is reached, no response or habit exists which properly relates to the new situation. Stimulus and response are complemental aspects or phases of the same process. Eminent psychologists long have held that they are simultaneous. One appears to succeed the other. That we know. Yet one is not caused by the other, as far as we know. The *terror incognita* between the simplest stimulus and response is vast. That they exist or appear in functioning, no one denies. Precisely why one appears to follow the other, no one knows.

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[20] Ellsworth Faris: "The Implications of Behaviorism for Character Education," *Religious Education*, Vol. XXIV, p. 120 (Chicago: R. E. A., 1929).

Reflexes and conditioned reflexes—the basic concepts of Behaviorism—when insisted upon as distinct entities in terms of stimulus and response, appear to be a jumble of "disjointed" mechanical "parts," constituents, or "distinct physical existences," rather than a coördinated, flowing process, an organic unity. Has any one demonstrated separate entities which properly may be called reflexes? It appears that no one has.

This treatise is proceeding on the idea, rather general in psychology, that stimulus and response are not two entities, experiences, or parts of experience, but are correlative, contemporaneous "functional divisions of labor." That is, stimulus and response are not separate entities or things, but are distinctions used to designate "flexible function only, not. . . . fixed existence,"[21] as many psychologists affirm. When either is attained, both are attained; that is, the coördination is complete. Experience is a continuous, flowing process, not a series of jerks or reflexes. We iterate that no one has demonstrated separate entities which may be called reflexes, although some Behaviorists seem to think that their existence should be taken for granted through the ipse dixit of Behaviorism.

The whole confusion arises at the point of regarding a sequence of acts *as if* directed to some end, in which case we tend to think of one act as stimulus and another as response. "The distinction is one of interpretation" with reference to an end-in-view, according to Dr. John Dewey. Coördination unifies and gives us in flowing experience that which Behaviorism assumes and attempts to establish in disjointed fragments—called reflexes and conditioned reflexes. It contends that later these jumbled, unallied fragments, twitches or jerks, somehow are touched off in a chain-like movement approximating coördination or unity. But it has demonstrated neither contention, even though it attempts to put "Humpty-Dumpty together again," after multilating him by reason of the reflex hypothesis and consequent analysis. Hence, Behaviorism's chief reliance on the omnipotence of reflexes and conditioned reflexes, as all-sufficient for and as "guarantee" of any desired outcome in character, falls to the ground. Its over-simplification of stimulus-response as mechanism likewise is rejected.

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[21] John Dewey: "The Reflex Arc Concept in Psychology," *The Psychological Review*, Vol. III, p. 364.

Whereas radical Behaviorism reduces everything to the level of reflexes and conditioned reflexes and conceives of all habits and learnings as of the same type, we suggest that the concept of habit does not encompass all life, and furthermore, that there are different kinds or levels of habits and learnings. In this connection Dr. Ellsworth Faris says: "It is in this insistent emphasis on habit and the unwarranted assertion that habit and learning are the whole of life that the contrast of Behaviorism with psychology is most conspicuously felt."[22]

Not only are habits paramount in Behaviorism, but also its concept of habit lacks sufficient dynamic. Dr. John Dewey[23] denies that habit connotes mere mechanical connectedness or repetition and, on the contrary, affirms that it is creative, even speaking of it in terms of "propulsive power" and "the dynamic force of habit," thus linking impulse with habit. He attaches considerable significance to the interplay of impulses and habits as *reorganizing* and *recreating* forces; that is, habit is "inspirited" by impulse.

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[22] *Religious Education* (Chicago: Religious Education Association, 1929), Vol. XXIV, p. 119.

[23] John Dewey: "Human Nature and Conduct" (New York: Henry Holt and Company, 1922), passim.

In the warfare between inborn tendencies and habits, thought, which is the twin of impulse, is born and when nurtured becomes the guide of impulse and habit and is more penetrating than either of them. Thus, while habit may imply routine, yet in the end it is much more; and is, as Dr. George A. Coe says, most creative when a person has the habit of criticizing his habits. Clearly these two leaders conceive of habit as dynamic rather than mechanistic.

Of the different kinds of learning our chief concern is with that which has primary relation to the growth and development of character. After reflecting, one recognizes that not all learnings are understood or rationalized by the learner. Those learnings, in the form of attitudes and skills, which are involved in the adjustments of individuals and groups to each other are our major concern, and are of different levels. Learnings vary from the merely adaptive, neuromuscular, habitual-performance level, in which the individual makes merely adaptive responses—to the higher levels of attitudes. Here we are in the realm of the dynamic factors in character formation, and while skills may fall away yet attitudes disappear more slowly and dubiously and are of greatest moment for our purpose.

The type of learning of the reflective, appreciative sort criticizes and evaluates and constitutes the higher type of educational learning, in which an individual does not so much learn what to do in every particular kind of situation as that he becomes the kind of person who knows what to do or has the disposition and practice of discovering what to do in subsequent situations. Instead of acquiring a compendium of conduct he knows or can learn how to meet the problems presented in each situation as it arises. This is the heart of character education from the Christian point of view and is infinitely more than knowledge-getting or "conditioned reflexes" which do not suffice. The individual meets situations, plans, projects, solves problems, completes enterprises. But more than this, he grows in loyalties; is changed from character to character. Attitudes, purposes, and ideals flower as a result of insight and devotion to a cause and issue in the individual becoming the kind of person worthy of being trusted. While there are many such learnings, yet they are few in comparison with those concerned chiefly with adaptive responses such as are employed in mere routine activities.

Consequently it is not our ideal to try to teach persons everything that they need to know or to do, but to lead them to become the kind of persons who know—in part—what to do and, more especially, are capable of finding out what needs to be done— *i. e.*, is most worthful, as occasions demand. Only such learnings can develop persons capable and worthy of being trusted, who are responsible, dependable. This is the heart of the Christian religion as far as character outcome is concerned. These learnings, then, rather than those of a mechanical, adaptive sort, are primary. Since all this is denied by extreme Behaviorism, it is rendered still further inadequate for our purpose.

We recognize the purposive, forward-striving character of most human activities and are thinking of purpose in the sense of an end-in-view. Since intelligent use of any tool or machine is conditioned on insight into its proper use or function, how can any one who disregards purpose understand human life, which is much more complicated than a machine? Human life differs from mechanical activity; it is qualitatively different, and cannot be understood apart from purpose. We cannot understand acts by studying them alone nor by studying only the intent of the actors, but by seeing the *relation* of *acts* to *intentions* and to their overt *consequences*.

As a matter of fact the most radical Behaviorists who in theory reject goal-seeking inadvertently employ it in practice, for in describing their most objective experiments they are compelled to refer to it—that is, they employ in practice that which they reject in theory. Why? It seems unavoidable since their experiments are based on the assumption that even white rats will strive, seek for food at the end of a maze, and the stronger the incentive or external reward the more effectively do they master the difficulties in order to reach the goal. Indeed, the situation is arranged to induce goal-seeking. Both Koffka and Köhler show that animals respond not merely to stimuli, but also seek goals. Köhler planned numerous situations to teach his chimpanzees to desire a goal and strive to reach it. For example, the ape Sultan[24] learned how to get fruit with the aid of a stick which he could not reach without it; and his sustained devising of means, such as joining two bamboo poles in order to reach it, was not merely a case of conditioned reflex for desire, striving; goal-seeking also was present.

While some Behaviorists strive to banish striving from their descriptive interpretations, still others—for examples, E. C. Tolman and R. B. Perry—admit striving and purpose in human and animal action, although they try to empty them of all mentalist implications. Confessedly, not all striving is noetic and the whole matter of purposive behavior has not yet been fully ferreted out by psychologists, yet we see no reason for denying a thing simply because is is elusive and baffling. Trying to explain behavior without purpose is like Hamlet with Hamlet left out. Gestalt psychology, according to both Koffka and Köhler, asserts that action tendencies configurate toward ends or closures.

Allport and other Behaviorists speak of "prepotent reflexes," "prepotent habits," "motor sets," and

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[24] Wolfgang Köhler: "The Mentality of Apes" (New York: Harcourt, Brace and Company, 1927), second edition, pp. 127-129.

"determining drives," and acknowledge that behavior is goal-seeking in some sense or other.[25]

One of the most unfortunate errors of Behaviorism is the assumption that since some responses can be conditioned apart from goal-seeking, therefore all can be; and consequently striving or goal-seeking has no part in the bringing about of a conditioned response. Even more unfortunate is its assumption that both animal and human behavior is basically and exclusively mechanical, whereas the only adequate interpretation or hypothesis relating to human behavior must include its mentalist and purposive phases according to many reputable psychologists, including some modified Behaviorists. It appears that Behaviorism begs the question when it refers to *tendencies* since they imply ends or goals, even though the latter are not always noetic.

Therefore, since purpose is a most significant factor in human life and since Behaviorism denies this, we conclude that the latter is shown to be fruitless yet further for purposes of religious education and character education.

Finally, we iterate that we reject entirely the philosophy of mechanism; that religion and psychology welcome all truth discovered by the objective method, even though alone it is partial, inadequate; that the raw material of all science is *objective experience* as emphasized by Köhler's latest pronouncement;[26] that combining his point of view with that of planning situations to awaken whole-hearted, purposeful experience in learners is vastly more fruitful in character formation than the mechanics of unreflective conditioning which seeks routine habituation; that no single school or point of view in psychology is adequate in structuring a satisfactory method of teaching or guidance in character education; and, that Watson's atomistic theory is most successfully refuted by his own practice of dealing with the individual as a unit.

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[25] F. H. Allport: "Social Psychology" (New York: Houghton Mifflin Company, 1924), passim.

SUMMARY AND IMPLICATIONS

As a point of view in character education Behaviorism is seen to be inadequate for various reasons.

First, it contradicts the fundamental nature of existence and of human nature since the latter, rather than appearing mechanical or helplessly pliable, is creatively self-directing and characterized by growth and development in the give-and-take of social interaction.

Second, while Behaviorism insists on the omnipotence of environment and training, we have seen that biological inheritance sets the limits within which growth and development can take place. Its claim that any healthy, well-formed infant can be developed into any sort of person regardless of tendencies and capacities is not substantiated. Individual differences necessitate different treatment, goals, and outcomes for each according to his capacities. No one knows the precise limits of human development, and consensus assures us that character is achieved, rather than imposed or donated, the final outcome depending partly on inheritance and partly on environment, and not on the latter alone as Behaviorism asserts.

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[26] Wolfgang Köhler: "Gestalt Psychology" (New York: Horace Liveright, 1929).

Third, Behaviorism's insistence on stimulus and response, reflex and conditioned reflex as separate, disjointed entities or mechanical "parts," distinct physical existences, has merely been asserted, never demonstrated. On the contrary, they are seen to be correlative functional concepts related to unified, flowing experience. Religion and education seek unified persons with properly motived and enriched experience, which is vastly different from chain-like reflexes, while advocates of *conditioning* youth seem oblivious of the fact that mental and moral life is not a "push-button" process. Human beings are not mechanisms, and reflex and habit do not encompass all of life. Even isolated units or habits only remotely *resemble* mechanisms, and Behaviorism's most unfortunate error is its unjustifiable extension of the concept of mechanism in its effort to reduce all life to that level.

Fourth, its denial of all mental life and of conscious, end-seeking action, which is essential in moral character, is a further weakness. While we do not know *how* conscious, purposive action operates to initiate or change human responses, yet *that* it does so is an objectively observable fact which is beyond dispute with most psychologists.

Fifth, its neglect of the social and consequent emphasis on extreme individualism ignores the fact that all sanity is a matter of social reference. This one-sided emphasis on individualism impoverishes both personal and social life rather than enriching them, whereas self and society are mutually interdependent and creative; that is, society causes changes in each individual and, in turn, is changed by each. Self and society are two different aspects of the same social process.

Sixth, it errs further in confining its techniques exclusively to objective methods, denying and ignoring other methods of experimenting with and studying behavior and life.

Seventh, it neglects experience, which is more than muscular habit and is distinguishable from routine behavior in terms of meanings; the experiencer himself being the point of integration. Experience is not subjective only or objective only or both together, but is the resulting integration and is more than knowledge; that is, it surpasses the noetic. We experience all that we know, but we do not comprehend all that we experience. We have non-rational and super-rational experiences which, while not irrational, yet outreach understanding. In some crises we rely upon such experiences when we do not *know* what to do, but *feel* the correct response. Through reflective analysis we learn the meanings of such events as we come to understand, but experience outruns understanding, for we live forward but know backward.

Eighth, it denies purpose, whereas the race has long held that action without purpose is capricious or haphazard. Action apart from intent or purpose is partial, and vice versa. Hence, we cannot understand an act by studying it alone, for correlative attitudes, purposes, and motives are essential in developing and understanding conduct and character. If this be granted, attitudes, purposes, and motives are quite as important in character formation as overt action, since the former determine the direction conduct takes. But purpose apart from the social consequences of action is meaningless also.

Other weaknesses of Behaviorism could be indicated, but these are representative and sufficient for our purposes. Perhaps the greatest present danger lies not in any particular psychology, but in living *as if* mechanism were true because we are living in a machine age. Religion and life are preferential, selective; each definitely chooses the kind of attitudes which he prefers to take toward his world and toward his fellow men. If a person's watchwords are *efficiency*, *things*, *products*, and *profits*, he may welcome a mechanistic view of life if he thinks it will serve his purposes better. But if *respect for persons as finalities* is uppermost in the life of an individual, his attitudes will be silhouetted on a background of human values looking toward discovering, elaborating, and enriching the possibilities of personal-social life in unprecedented measure. Profits and things may diminish even in order that the life of the spirit may flower in following in the path of those who trust and believe that *out of the heart are the issues of life.*

X

CAN A BEHAVIORIST BE GOOD?

BY JOSEPH HERSCHEL COFFIN

THERE was once a man, so the fable runs, who dreamed that he was wide-awake; this so shocked him that he awoke only to discover that he was fast asleep and dreaming. Which is true only as a vivid illustration of the violent switch from objective method to subjective method and back again which the Behaviorist makes in his account of human personality.

He starts out manfully to use only the objective method and record only what can be seen from the outside of the behavior of animals and men. Whittling his doctrine down to its essentials, there seem to be two basic hypotheses; the first of which is that there is no "consciousness"; and the second, that all behavior is accounted for by the "conditioned reflex" or by the pyramiding of conditioned reflexes.

But the postulating of the hypotheses, the critical observation, the inferences based upon it, the elaborate application of the "conditioned reflex" principle seem hopelessly to employ those very subjective conscious processes which the hypotheses are designed to put out of business. For, when Watson[1] "assumes" "that 'images,' those ghostlike pictures of objects not present to the senses, have been given up in psychology," who but a conscious human being is doing the "assuming," and what but a person with subjective images is trying to displace an out-dated psychology with a newer model? To attempt to give an objective account of the reasoning and inferring processes by calling them internal speech can scarcely satisfy any but an old-time atomic physicist. If, as some one avers, a Behaviorist is a "philosopher who has made up his windpipe that he has no mind," and if there really are any such philosophers, they may no doubt identify the thought process with the automatic operation of the speech mechanism in the neighborhood of the windpipe.

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[1] "Behaviorism," p. 213.

But the person who is not hampered by the partial color blindness of the Behaviorist will still insist that Behaviorism itself has been broadcast to the world through the joint operation of conditioned reflexes and consciousness; through the agency of a neuro-muscular mechanism and teleological thinking; through a combination of both objective and subjective processes. The fallacy of Behaviorism lies not so much in what it affirms as in what it denies; to put it the other way, the fallacy inheres in the claim that it is the whole truth, whereas it is only part of the truth.

THE MORAL SITUATION

No better case in point can be found to illustrate this switch in method than the moral situation which by common consent is one of the most characteristically human of any. To behave like a human being is to behave like a moral being.

Here, for example, are Carl and Herbert. Carl is "good" and a failure, but Herbert is "bad" and a success; while their mother—if it is not too harsh to say so—is immoral and a failure. At least she is devoid of a certain quality of constructive morality and in consequence she is a failure as far as the boys are concerned.

"In college Carl followed the guidance of his mother and graduated with honors. Herbert, however, became a ringleader in college pranks and was expelled in his sophomore year. He refused to follow his mother's guidance, which resulted in discontinued allowance until he would do as she wished; as a result he went to work in a store. He soon lost interest in this job, and because of his love of machines he went into a shop. Here he learned by his failures, and, in the end, did exceptionally well. At the age of twenty-four he owned one of the best shops in the city, and to-day he owns his house, is the father of several well-behaved children, and is a leading citizen in the community.

"After Carl and his mother had traveled abroad, he returned for graduate academic study. Lack of initiative made him unfit for professional life; to-day he is a bookkeeper earning thirty dollars a week. He is discontented in his work and regrets the fact that he did not prepare for a special vocation.

"His mother wonders why Herbert rather than Carl should 'have acquired the good things of life.'"[2]

Here is human behavior in its native human state, involving what we are accustomed to report as moral situations. Translated into questions some of them are: Are college pranks immoral? Is refusal to follow mother's guidance wrong? Did mother do right to discontinue the allowance? Was Herbert morally justified in switching from one job to another? Was it morally commendable for him to own one of the best shops in the city, his house, have several well-behaved children, and be a leading citizen? Was Carl's lack of initiative a moral delinquency? Is there any moral flavor to discontent? Was he morally culpable for not having prepared for a special vocation? Was mother morally justified in her temper of dominance, the factor which seems to have caused Herbert's recalcitrance and Carl's submission? And has she a distorted moral vision in chafing because Herbert instead of Carl "acquired the good things of life"?

But What Is a Moral Situation?

Forgetting the mechanistic mind-set of the Behaviorist and looking at the matter through the eye of common sense, we observe the moral situation to be a plot or predicament involving three factors: some sort of value, a situation involving somebody's welfare, and one to be reacted to by a voluntary act. Here is

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[2] Brewer and Others: "Case Studies in Educational and Vocational Guidance" (Ginn and Company), p. 146.

Herbert: a ringleader in college pranks—putting the pig in the pantry, hazing a Freshman and the Ladies' Aid by injecting the former in a near-state-of-nature, into the latter, going on a wild party, or what not, for which the arbiter of morals expels him. Here, too, is Carl, supinely submissive to mother and in consequence getting A's in college and a thirty-dollar-a-week job he does not like. In both cases and in all cases, the act is one's own; one does it for the sake of an alleged value, and with an intelligent or an unintelligent notion of securing somebody's welfare, immediate or remote.

Despite the heavy hand of certain theologies, genuine moral situations are probably relatively rare in one's life experiences. But they are crucial in direct proportion to their rarity. Most of life is admittedly run by the mechanistic principle of conditioned responses—that high-brow phrase for habit But once in a while—once a day or once a week—we come straight up to a crucial situation of novel design to which we are obliged to make some response. It is a *bona fide* adjustment situation. We act. And we come through either with a consciousness (despite the Behaviorist) of having done the right thing under the circumstances, with a comfortable self-approval; or we come out of it with a feeling of remorse because we "went off halfcocked," or because our judgment was poor and we made a mistake, or because we were weak and fell for a momentary satisfaction whose aftermath is "in the red." Any way we look at it—except the

Behaviorist's—the moral situation is a real, life-sized problem that looms large in one's historical life.

THE QUESTION OF VALUES

But there was the question of value. What of that? If we approach this question from the bio-psychological point of view, I suppose we must say that anything has value that satisfies. Whatever answers any kind of a primitive or acquired need or desire has value for the organism. A cigarette, a competing sweet, or even spinach has its value in so far as it satisfies. This is value on the ground floor. It takes no account of the time factor, the after-effects of the satisfaction, or of ethical theories. It is raw, native valuation of things that satisfy desire right now.

But the human responder is so constituted that he does not normally float very far down the stream of time until time itself begins to figure in his responses. Given only a minimum of intelligence, one can discern the fact that some satisfactions are only momentary and some have undesirable after effects, while others assay high in satisfaction not only at the moment but continuously thereafter. As wise old Epicurus pointed out, not only is the presence of positive pleasure a good, but the absence of pain is equally good. Hence insight into the effects upon self of one's acts is the first necessity of the good life. Not only insight, though, but the hindsight of memory and the foresight of imagination must coöperate in the administration of the good life. In a word, the historical quality of each man's career must be made available to him through (the-to-the-behaviorist-non-existent) memory image, and the free images of imagination, which bind experience into a growing, flowing, emerging, and projected reality. Time must be a grievous thorn in the side of the Behaviorist. If man were just a higher animal who had no concept of time, but who simply lived *in* time, the story of human behavior could be so much more simply told without reference to this troublesome nonentity of consciousness.

But these very ghostlike memory images, and equally ghostlike images of imagination, are the right wing and the left wing respectively which lift personality to an altitude from which life can be seen as a continuum. They are the factors which buoy personality into the atmosphere of ethical value. Or to change the figure, they are the binoculars through which life takes on perspective. For ethical value, as distinguished from mere psychological value, means satisfaction *in the long run;* whatever satisfies the needs of the organism permanently and whatever contributes to its length (in time), breadth, and depth has ethical value. Granting that an automobile has ethical value in the sense defined, should I drive a five-hundred-dollar car, a thousand-dollar one, or a twenty-five-hundred one? Here, as in every case, one must balance this value over against the whole system of values in order that the greater may not be sacrificed to the lesser. If driving a twenty-five-hundred-dollar car precludes the possibility of securing other satisfactions, whether they be food, or schooling for the children, or cultural opportunities for the family, or the satisfaction of helping in other ways to bring in the kingdom, then one has sold out for a lesser value, and consequently performed an immoral deed in buying the expensive car.

The first essential, then, in a moral situation is the presence of a value-problem. But if you are a Behaviorist there can be for you no moral situation, because you have given up those ghostlike images of memory and of imagination which were basic to your ability to picture to yourself and to project into the future a system of values. You are the slave of the present situation, and if you do inhibit a primitive impulse of some kind it is because you have been conditioned that way, and the substitute response has been written into your muscular system—perhaps your windpipe—by concrete past experiences. Any subjective process properly called inference is only for the gods—if there be any.

Social Space a Factor

If time is one dimension in which personality lives its life, social space is another. Consciousness of social relationships and the utilization of them in personal living is as characteristically human as awareness and utilization of time. Because of the limitless bio-social environment in which the generations of historical humanity have been nurtured, every member of the race is a bio-social organism as well as a psycho-physical organism. And he as inevitably feeds upon the social inheritance as upon the fauna and flora of his geographical environment. Consequently the social relationships and his social responses to these situations are as vital a part of his life as are nutrition and gestation. And group welfare turns out to be as much an instinctive necessity for him as the satisfaction of his own hungers. Durant[3] puts it this way: "In the light of this biological approach it becomes sufficiently obvious that the natural and inevitable basis and definition of morality is the co-operation of the part with the whole." Those who would make the field of morals synchronous with the whole cosmos—being in conscious harmony with the whole of creation—seem to make a very hazy distinction between morals and religion. The logic of the situation would seen to demand, rather that we correlate the moral situation with the social situation, leaving this larger harmony to the field of religion. To be moral thus means to be sensitive to the welfare of the group. And the moral situation is one in which the individual must not only figure what the greater values for himself are, but also what the social implications of his proposed acts are. Not infrequently one is called upon, therefore, to measure the social welfare over against his own organic welfare and to choose a satisfaction of the larger social self over a satisfaction of his material individual self. Only so can the higher values be achieved. As Durant[4] says, again: "But we cannot satisfy our own hearts with any ethic that ignores the group; we feel in the very aftermath of an unsocial act, the need of a sounder and cleaner life; we want existence in which we shall know not only the pleasures of the skin, but the quiet contentment of comradeship and coöperation. We wish to be healthy animals, but we wish also to be citizens."

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[3] "Mansions of Philosophy" (Simon and Schuster), p. 137.

Here again the Behaviorist is in bad shift. Having denied consciousness, what need does he know of a "sounder or cleaner life"? What facilities has he for weighing social consequence? To what extent can his internal speech mechanism—his windpipe—serve as a causal factor determining his conduct, or what influence can the present contemplation of his course of action have upon his actual conduct next January? Can the "conditioned reflex" carry the weight of the superstructure of a moral life?

WHAT OF VOLITION?

To the unenlightened "old-line" psychologist volition was a very real process. Thinking was conceived as having two quite definite functions, both of which had causal relation to the processes of adjustment. On the one hand thinking possessed an explanatory function. Most of the processes of induction and deduction in the fields of science (even Behaviorism) were supposed to contribute to an

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[4] "Mansions of Philosophy," p. 148.

"understanding" of natural phenomena. Observation and inference seemed to lead to the formulation of natural laws (including the law of the conditioned reflex). Thinking then had its explanatory function. To the old-liner an explanation which explains away the principle of explanation seems a violation of the first principle of science—namely, the demand for consistency.

The other function of thinking seemed to be the teleological function. Thinking claimed to be a process of pre-acting. Granted that life is a process of continuous adjustment, the superiority of human adjustment over that of the "lower" animals seemed to be that man could inhibit certain of his reflexes, even his conditioned reflexes, long enough to rehearse in prospect both the proposed act and its consequences. This seemed to be the very essence of making plans, programs, projects; even a program of behavioristic exposition. It seemed to offer an opportunity to measure the proposed act in terms of one's system of values. It seemed that in thought human personality had a steering apparatus by which the native drives which arise from the liberation of the biochemical energy of the organism could be steered toward a remote end, instead of being expended wholly upon momentary satisfaction. It seemed that the very fact of free images and imagination through which the possible alternatives and their consequences might be envisaged was the essence of value systems, social consciousness, and the thought process. These factors, taken together, are what the psychologist had understood by volition. Volition was then the synthesis of thought and value made dynamic. These, in turn, as functioning in each individual member of society were the factors which created the fact of a moral atmosphere and the ethical life.

But if the Behaviorist's account of human personality is the truth, the whole truth, and nothing but the truth, then of course all this was a tragic mistake, and we have awakened only to find that life is but a bad dream. And yet, there is the other possibility—namely, that Behaviorism is itself the bad dream and that "regular" psychology is full and normal waking consciousness. Durant seems to favor this latter vew in these telling sentences:[5]

"Consider consciousness. What is this mysterious faculty that we have of being aware of what we are doing, or have done, or intend to do; of seeing the conflict among our own ideas and desires, and criticizing each by means of the rest; of imagining possible reactions and foreseeing through memory probable results; and at last of meeting a patiently analyzed situation with all the resources of thought and desire coördinated into a remolding and creative response? The experiments of Köhler, indicating the rôle of total insight, as against the conditioned reflex, in learning, have discredited the mechanistic conception of mental processes. What unwitting dishonesty has come to us, that to-day, if we wish to be in the vogue, we must deny the existence of consciousness in order to save a mechanistic philosophy that could not possibly explain it?

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[5] "Mansions of Philosophy" (Simon and Schuster), pp. 92, 93.

CAN A BEHAVIORIST BE MORAL?

What to make of Behaviorism, where to set it down in the museum of unworkable hypotheses, can be determined only in the light of one's total philosophy of life. After all we may admit that the final evaluation of any hypothesis must be made in terms of its ability to account for all the facts in the case. The question in this instance is, What is the case? Is the case in point bounded on the north by biological heredity, on the south by law of conditioned reflexes, on the east by the present moment, and on the west by the principle of mechanism? Must the psychologist work within these four fences and never look over the top rail to see what is going on in other areas of life? Must a tenable hypothesis be worked out just in reference to the meager findings of the one field, or should it be checked by facts that thrive in the adjoining fields? Is the psychologist a good psychologist who takes into account only his own data irrespective of their implications for the man on the other side of his fence? Can a psychologist be an efficient psychologist who is not something of a philosopher at the same time?

The demands of good logic seem to require that there be some coöperation between the specialists in the several fields of investigation. The psychologist ought to be sensitive to what is going on in the field of social psychology, sociology, ethics, æsthetics, education, religion as well as to what is transpiring in the fields of physics, bio-chemistry, and physiology. The prime requisite of any hypothesis is, first, that it set up a principle of explanation for the data within the specialized field, and secondarily that it strive to make its implication consonant with the hypotheses in the adjoining fields. Behaviorism may seem to meet the first of these tests. But as far as articulating with those facts of the cosmos which are familiar to the sociologist, the ethicist, the religionist, Behaviorism is a total loss; worse, it is a shadow on the landscape. Even its correlation with the assumptions of physical science seem to be out-dated. For its assumptions are consonant with a mechanistic physics which seems on the point of giving way under the light of the new researches into the structure of the atom.

So Behaviorism appears as a pathetic figure circling around in the backwash of the widening swiftly flowing stream of science. As a science of mind it was interesting hocus-pocus; but as contributing to a philosophy of life its implications are unavailable. So in the matter of morals. On all three counts Behaviorism would defy and negate the moral life. Behaviorism has no place within its world for a system of values; it knows no consciousness of social relations; and it refuses to allow a volitional act. So we are faced with a dilemma: either the mechanistic psychology of unconscious behavior that knows no moral situation, or the teleological psychology of a self-conscious personality that lives and moves and has its major being in a world of values and in a world of other persons, where moral situations are among the significant facts of life. Whichever of these opposing hypotheses takes most complete account of the most facts of life must be adjudged the sounder. Of a truth, even as C. K. Ogden remarks in another connection, so in relation to the matter of morals, "The point of view of the Behaviorist is not a point of view, but a mistake."

XI

BEHAVIORISM AND THE ARTS

BY LYNN HAROLD HOUGH

We may as well begin with the Cheshire Cat of that famous Alice who journeyed to Wonderland and who found what was to be discovered by going right through the Looking Glass. You will remember that famous cat. It began to disappear. It continued to disappear. By and by the cat was gone. But last of all there remained its smile. The smile without the cat may be said to have been a very strange phenomenon. But not more strange than the action of that "assembled organic machine ready to run" which Dr. John Watson finds man to be. This world of behavior with no mind to behave; this world of observation with no mind to observe; this world of carefully worked out controls with no conscious mind to do the controlling—this really is the world of a glorified Cheshire Cat. Behavior is left long after Dr. John Watson has discovered that there is no one to behave. By the time he has made up his glands that there is no spiritual life, we wonder why (to appropriate Philip Guedalla's brilliant sentence) he takes the trouble to cast his mother of pearl before swine. It is all to be sure a swirling fantastic experience. We are emancipated completely from anything which deserves to be called psychology. For Dr. Watson is careful to tell us that Behaviorism "is different from psychology only in the grouping of its problems, not in fundamentals or central viewpoint."[1] We are rapidly hurried along so that we scarcely have time to lift the one urgent question: "Must not psychology have been changed and transfigured if it has become able to group problems?" We are gravely assured by the physiological Jove who writes on Behaviorism that philosophy is "gradually disappearing and becoming the history of science."[2] But in a mindless world how did philosophy ever manage to seem to appear? And in a purely physiological world what does it do to disappear? Was it hidden in a gland which has refused to function? And how did that gland become conscious of its contents? And what odd superb magic in a mindless world invented such a word as "philosophy"? Ethics, we are assured, with other disciplines "now shows the following leaning" (By this time thought has become a nightmare. Does a gland do the leaning? Has behavior forgotten to behave and begun to lean? What does behavior do when it stops behaving and begins to study and to classify itself? Or does it go on behaving and studying itself at the same time?)—in any event Ethics, we are assured, now becomes "experimental ethics based entirely upon experimental methods." We feel a touch of reassurance, for it had seemed that all standards had flown away. But in a mindless world who conducts the experiments? Who registers the results?

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[1] "Behaviorism," p. 11. [2] *Ibid.*, p. 17.

Does some wise old gland keep a shrewd metaphorical eye upon the experiments? Indeed, does some gland originate them and carefully work out their meaning?

Dr. John Watson is continually using personal pronouns which imply a series of actualities he has just denied. If everybody had always believed in Behaviorism, where would one have come upon the pronoun "I" or the pronoun "we"? With such amazing dexterity does our prophet, priest, and king of Behaviorism assume in one breath what he has denied in the breath before, that in dark moods one is inclined to declare that while Behaviorism as a philosophy cannot be admitted to give a final account of the universe, it does not do too badly in giving an account of the processes of Dr. John Watson. But of course books written with no mind to direct them, with no free moving intelligence to guide them, quite without the critical sagacity of conscious direction, must not be judged too harshly. When glands take to writing books, it is rather wonderful to see them throw words together even so well as does that automobile without a driver whose activities gather about the name of Dr. John Watson. And when we have discovered that conversation and even thought consist in tossing words about until they take the bit in their teeth and because of some curious relation to glandular activities suddenly become meanings, we realize that the handling of them without any master to do the handling must be a rather precarious and difficult affair.

The most interesting thing about Behaviorism is revealed when we consider the people who have felt that it offered them a satisfactory interpretation of life. This can be accounted for not by analyzing its incoherent philosophy, but by remembering that the calling of our attention to the immense significance of the results which may be obtained from the observation of behavior was a service of first importance. The observation of behavior by a knowing mind using the utensils of critical intelligence is one thing. The vain notion that life is nothing but behavior and that there is no place for an observer who takes account of this behavior is another. The people who have been beguiled by the second are only another illustration of that habit of which Dr. Whitehead writes so brilliantly in "Science in the Modern World" of working with implicit assumptions which are never critically examined, and often of denying the principles upon which our work is based at the very moment when we are using them.

But what is the relation of Behaviorism to the arts? Must we regard the movement as the friend or foe of that quest for beauty and harmony which is one of the great matters in life?

I

The arts use materials of all sorts to express the impalpable harmonies of the invisible world of the spirit. It is of the very nature of the material to become the vehicle of the immaterial. It is the very nature of the visible to become the instrument of the invisible. Music, the most subtle of the arts, turns mathematics into poetry through the use of harmonious sounds. Sculpture draws from marble the very loveliness to which that hard and irresponsive form is persuaded to surrender. Architecture discovers that buildings may be expressive of the most subtly integrated ideas of harmonious relationships as well as the means for the protection of men and their belongings from the invading forces of rain and snow, of burning sun and tempestuous wind. Poetry itself discovers in words and phrases and sentences possibilities of harmony undreamed of before. When a real poet comes, language takes to dancing to a lilting measure, or moving in grave sad dignity to the music of a dirge. Passion and pain, hope and fear, aspiration and regret are all given a new life, through those words of haunting power which come at the poet's call. So the lofty harmony of the Pantheon, a symphony by Beethoven, the poised dignity and noble grace of the Apollo Belvedere, the mysterious depth and divine beauty of the Sistine Madonna, and the strange and baffling completeness of the Divine Comedy, when the universe itself is made to wail and sing, give us a sense of the visible as the vehicle of the Unseen splendors of a world of reality which transcends the world of form and sense.

Now what place has all this in the world to which

Behaviorism introduces us? The answer may be made with explicit words and quite without hesitation. If we regard behavior as the expression of personality, then the world of art retains its ancient grandeur, and the technique which we attain through a thorough study and classification and interpretation of the facts in respect of behavior may increase that control of his materials which the artist so deeply desires. But if behavior is regarded as a substitute for personality, if the uniformities of existence are seen as complete and determined and self-running, then the world in which art is possible simply ceases to be. As a matter of fact events have no meaning until they are seen in the perceptive unity of a knowing mind. The glands—if they are glands and nothing more—can never account for Shelley or Mozart. Shelley may make the most of glands. But glands must be transformed and transfigured and made the instruments of conscious personal intuition before you get within reach of the "Ode to the Skylark."

II

We must remember, however, that "human all too human" tendency to deny things and then with the most unconscious arrogance to assume them for the practical purposes of our activity. Because a man has no logical right to a position, it does not follow that he does not occupy that very position. No end of men really live by the truths which they verbally deny. And Lucretius' "De Rerum Natura" illustrates clearly enough the possibility of writing lovely poetry to express a position whose truth would lead to the extinction of poetry itself.

So we must be prepared for a whole group of young intellectuals who scornfully repudiate the sanctions which make their work possible. In truth, "Behaviorism," to a good many artists, is a subtly diffused atmosphere rather than a reasoned philosophy of existence. Indeed, the forces which have produced Behaviorism are more profound and more significant than Behaviorism itself. And they have been found in lands little influenced by the formal presentation of Behaviorism. The sort of close scrutiny of men's actions, expressed in phrases which meticulously reflect the quality of the actions themselves, which you find admirably represented in the writings of Mr. John Galsworthy, reveals, both in its strength and its weakness, the influence of the very intellectual atmosphere in which Behaviorism thrives. The same thing may be said of the writings of Amy Lowell. That famous poem "Patterns" belongs to the world of thought which has become impatient of luminous spiritual sanctions and records with infinite care the phenomena of human life.

Such writing really involves an unconscious selective process. The artist with his subtle perception is at work all the while—however little he may realize the significance of his own processes. But as he has ceased to believe in the more subtly interfused realities of the spiritual life, he specializes on the body. If ideals are becoming less luminous, sensations at least are very much within reach. To observe them and to describe them may become the artist's meat and drink.

The tendency is clear enough in John Galsworthy. But in his case there are restraints and inhibitions and unconscious assumptions which give a sustained distinction to his work. But when the principle has free course and plays ingloriously with the artist you have the sort of writing which Paul Elmer More caustically described as an explosion in a cesspool. In the case of music you have pure unilluminated mathematics on the one hand or the wild exotic outbursts of jass on the other. In architecture you may come to the type of building which does not express anything because there is not anything to express.

III

There is, of course, a possible attempt at escape from all the impersonal philosophies by regarding beauty as a thing which exists in its own right—apart from the construction of the universe or its possible meaning. The delicate and infinitely sophisticated work of the French symbolists expresses this tendency. It is based upon a kind of æsthetic courage which begins by denying what it has assumed to be the facts of life, insisting that it will worship beauty even if there is no such thing as beauty to be worshiped.

Writing or painting which is the expression of such an attitude will be produced for a heroic period of brilliant effort. But it tends to become exotic and artificial and unreal. Cubism and futurism come naturally after a period whose conception of reality has left no profound and real place for art.

As the period of the artificial and bizarre progresses you are likely to find the emergence of men who give themselves to profound thought searching for deeper and surer bases for art and wider perspectives in the use of its materials. The brilliant work of Paul Valéry, who has succeeded to the Chair of Anatole France in the French Academy, is the result of some such progress. In all, this life is trying to secure the right of way, to prove that it is mightier than formal logic, and if it can to make men good artists even when they are bad thinkers.

And some men will succeed in isolating the consciousness of beauty from all the rest of their thinking and so produce that which has a clear and delicate and exotic beauty like the ghost of a flower in an unreal world. Their work is likely to be fragile with an evasive loveliness which gives one the feeling that it will crumble at a touch. The warm rich tides of life do not flow through it.

The artist whose conceptions of life make no real place for beauty may build for himself an ivory tower in which he frankly secures refuge from the hard actualities of the world which his grim mind presents to him. Here art becomes an escape. It may have an involved consistency of its own like the gossamer perfection of a spider's web. But it is the art of fairyland

and will not withstand a moment's contact with any other world than the realm of fantasy. It represents the rebellion of the heart while the mind securely holds the throne. Lord Dunsany's delicate and exquisite sketches of a world never seen on sea or land easily fit in with this mood.

All these types of art are the by-product of an age when various forms of mechanistic and impersonal philosophy secure control of the thoughts of men. They represent the writing of the human spirit upon the Procrustean bed of a philosophy which is too small to make room for its essential experiences. That interpretation of the study of behavior which forgets that there must be some one to behave falls into all the fatal mistakes which are so characteristic of all mechanistic philosophy.

IV

The artist himself may set going movements which will issue in a more adequate philosophy if he insists, against all comers, that the interpretation of life must be large enough to cover all the facts of experience. Such an endeavor was put into brilliant execution by Theodore Watts-Dunton, whose "Aylwin; or, The Quest of a Wonder" is the cry of life for a philosophy which will make room for art because it will be clear-sighted enough to refuse to deny the facts upon which the possibility of art is based.

In the writings of Wordsworth and Browning you find many a flashing thrust of the poet's sword as he becomes conscious of the presence of the forces which would make poetry impossible. And these Victorians are of great significance, because the foes they fought appear with new names but with the old qualities in materialistic Behaviorism.

Once and again you come upon a sense of these grim forces which must be mastered as you read the critical writings of such a darting thinker as Edwin Muir. Mr. Muir is by no means consistent. He by no means always fights on the side of the angels. But at times he does show that he has genuine objections to being in a universe in which it is impossible to fly, or, to put it more accurately, to go about flying in a universe while insistently declaring that there are no such things as wings. Such a bright and understanding writer as Erwin Edman on this side of the Atlantic is all the while claiming for his own rights which an impersonal universe can never give him. He insists that he will make his own the ripe beauty which belongs to another world than that in which his mind moves much of the time. But that is just the important matter. His mind has moved. And if he lives at the moment in a halfway house it is far enough from the world of impersonal forces in whose proud slavery so many of our bright young men insist that they must dwell. There may be those who would say that the artist and the philosopher are all the while fighting in Professor Edman. In that event the artist may open the door to a more adequate philosophy.

V

Whether it be in the name of Behaviorism or of the earlier mechanistic forms of philosophic thought, of course there will be those who insist upon going the full length of their grim philosophy. Thomas Hardy may stand as the most brilliant representative of this class in the English-speaking world. To be sure, Thomas Hardy by some literary magic had to get out of the deterministic universe in which he lived in order to describe it. But he was so busy describing its effect upon the human slaves of the system that he never stopped to analyze the inconsistency. And so with sternness and sadness and sardonic satire he pictures the little puppets who move on this stage of predetermined events. He finds corrosive phrases like the "President of the Immortals" in which to express his own sense of the bitter satire of life in a world where all we do is really done without our consent, or rather with a consent which is won in spite of ourselves.

This sort of writing may be very splendid and very sad and very ironic. But it represents a temporary mood and not a permanent inspiration. That mood may last long enough to fill the shelf of books which one man writes, but sooner or later its inner sterility becomes apparent, and the arts themselves begin to languish. Artists cannot permanently take this stand upon a platform of invincible despair and protest in a world of mechanism which must be transcended in the very act of protest. To describe automata you have to rise above the world of the automatic yourself.

In the meantime art may take the form of delicate and exquisite jeering at sanctions regarding whose existence the artist has a profound and unshakable unbelief. The Isle of Penguins, which so diverted the not entirely chaste imagination of Anatole France, represents a very high degree of artistic performance. But the very capacity which produced this subtly integrated artistry itself illustrated the presence of the sort of potencies which make the moral and spiritual values real and significant. If you can jeer with brilliant distinction at the world of ethical and spiritual values, the very jeer proves that you are a kind of inverted citizen of that world.

So the pendulum swings backward and forward and the vital forces are all the while claiming our allegiance. Behaviorism, we see clearly enough as we watch these great and tidal movements, is only one current in a great inrush of the sea of defiant denial upon the wide-lying land of faith. And by faith, dropping the metaphors, we mean belief in that free personal life which is the basis and the security of all moral and spiritual values.

VI

But Behaviorism tends to deplete the artistic impulse and the artistic performance in a way which is definitely related to its own inherent genius. For the classification of forms of behavior in the physical, chemical, biological, and psychological world, without asking any critical or probing questions which would lead into the realm of the conditions of thought and knowledge or the nature of reality, is really the abdication of the intellectual life. When you brush aside history, philosophy and ethics, and theology as does Dr. John Watson, you brush aside the very disciplines which form the mind of the artist for the finest issues and you cast away a body of the very finest and richest materials which lie waiting for the purposes of art. So the mind of the artist is reduced to its lowest terms. And many of his best materials are literally thrown away.

Behaviorism of this type is a short cut which simplifies the intellectual task by ignoring all the profound problems and turning its back upon vast areas of supreme significance in the intellectual and moral and spiritual history of the race. This variety of short cut is very attractive to virile men in a hurry to give their minds some sort of furnishing before they rush out to the engrossing tasks of production and transportation and salesmanship. For giving a man without culture a sense of temporary satisfaction with his state of intellectual nudity Behaviorism is probably the best recipe which the history of thought provides. One might call behavioristic theories of this sort the intellectual equivalent of fig leaves were it not for the fact that Dr. John Watson never seems so happy as when calling attention to those things which fig leaves have been supposed to hide.

There is something very tragic in the type of intellectual life which begins with a declaration of independence from all the refining and enriching cultures of the past. There once was a nation which for a few years worshiped a declaration of independence. Before it became a great nation it found it necessary to have a constitution. Dr. John Watson draws the life of man in the condition of the thirteen colonies after the end of the revolutionary war and before the adopting of the constitution. It is bad for every area of life. It is particularly and definitely and devastatingly bad for art.

VII

Your greatest artist like Dante delights to become the voice of the silent centuries. He builds his artistic product upon profound philosophic insights as Dante appropriated the sanctions emerging in the philosophy of Aristotle. He incorporates the profoundest understanding of theology in respect of the great matters of God and destiny as Dante set the theology of Saint Thomas Aquinas to music. The very ripest of human thought and experience becomes the material of his art. He is a man, and all that concerns humanity is of interest to him. He is not content to say, "I am a gland and all that concerns glands is of significance to me." To be sure everything human and subhuman and superhuman will become grist to his mill. He will have a place for glands. But they will not be allowed, like the old-fashioned big bad boys, to break up the school.

We live in a period characterized, as Paul Valéry has suggested, by minds which try to make a home for contradictory ideas, and we may add for contradictory impulses. The way out of the confusion is not a descent into physiology, as if physiology were the "be-all and the end-all here." It is by climbing and not by descending that we will get a good view. And as we lift once more, but with new acuteness, the question as to the conditions of knowledge and the assumptions involved in our belief in its validity, as we apprehend once more the meaning of that personal control which is fundamental in the work of the scientist and the engineer, as we adventure into the realm of the spirit where the ultimate values lie, and come to understand that meeting of the material and the spiritual in which the material finds its real and true significance, we come to see a legitimate interpretation of behavior as the activity of a personal world, and that Pseudo-Behaviorism, which holds up glands with the cry, "These be thy gods, O Israel," is seen in its essential folly and futility. And the personal world which appears to the eye of critical reflection is the world in which the arts flourish. It is the world which produced Æschylus and Sophocles, Euripides and Dante, Shakespeare and Milton. It is the world which will produce the great artists who are yet to be.

XII

BEHAVIORISM AND RELIGION

BY JULIUS MARK

THE issue between Behaviorism and Religion is clear-cut and definite. It resolves itself down to the question, "Does man live by bread alone?" The answer of the Behaviorist is a positive "yes," while the reply of the Religionist is an equally unequivocal "no." Behaviorism is a logical consequence of a materialistic philosophy of life, while Religion does not pretend to exist without an emphasis upon the spiritual.

Now it may be noted at the outset that Behaviorism does not in itself constitute a frontal attack upon Religion. Professor Watson does not take the time to refute its tenets. He merely ignores Religion, taking it for granted that for the intelligent it has ceased to exist. Thus he says that Religion is "being replaced among the educated by experimental ethics" and "the old psychology is dominated by a kind of subtle religious philosophy." No thinking man is afraid when his philosophy is attacked. If his search is for truth, he will gladly welcome the assaults of those who disagree with him. Then he will either refute his opponents, or he will admit that he had been wrong and revise his original opinions. But we all dislike to be ignored, to be swept aside with a wave of the hand, to be considered even beneath contempt. Thus when I, a believer in the truth and efficacy of Religion, was requested to contribute to this volume, I was only too happy to respond.

To me Behaviorism is the work of a "good man gone wrong," to put it rather bluntly. It has unquestionably made, and is continuing to make, a very valuable contribution to human knowledge. The study of animal and human behavior is exceedingly important. Its enthusiasm for scientific exactness is decidedly laudable. The only trouble is that it has chosen to ignore a source of knowledge that is vital to a rational understanding of life, if not to truth in general. If Behaviorism were to limit its field to the mere study of behavior, it would serve a vital purpose and become a very useful study. But when it seeks to become Psychology, Philosophy, Ethics, etc., all in one, then, to use Edward S. Robinson's expression, it resolves itself into "an interesting blend of solid contribution and adolescent exaggeration." It forswears its self-styled right to be called rigidly scientific when its outstanding proponent repudiates any source of knowledge whatsoever.

Take for example the perfectly simple way in which Professor Watson disposes of the origin of the idea of the soul. He tells us that "no one knows just how the idea of a soul or the supernatural started. It probably had its origin in the general laziness of mankind." I agree that no one knows exactly how the idea of the supernatural arose. But to even hold to the *probability* that it arose from "a general laziness of mankind" is to manifest either inexcusable ignorance upon the subject of the history of religions or a desire to be cheaply cynical. I, too, say "probably." But to me it is far more reasonable to agree with those scholars in the field who have come to the conclusion that the idea of the supernatural arose with the urge in men's minds (if I may be permitted to use this term) for an explanation of the universe. In quest for an answer to the riddle of the world, they arrived at the idea of the existence of the spiritual. They, too, were undoubtedly aware of "behavior," of movements and reactions in men and animals, of the "squirmings" of infants. But all that did not serve to explain anything. They went further in their search; they probed deeper into reality.

The basic argument of Behaviorism centers upon its denial of the existence of "soul," "spirit," and "mind," the primary reason being that "the Behaviorist finds no mind in his laboratory, sees it nowhere in his subjects." To the unthinking and the unscientific such a statement sounds extremely logical. And for nearly twenty years the rallying cry of Professor Watson's followers has been, "You can't put the soul in a test tube; therefore it doesn't exist." I wonder how many of these supposedly rigorous "scientists" would deny the existence of electricity because it has never been confined in a test tube? I wonder how many would hold that there is no such thing as energy because no physicist has ever seen, touched, smelled, tasted, or heard it? It is childish logic such as the above argument manifests that may cast into disrepute even that which is good and true in Behaviorism.

By this I do not mean to say that the study of the mind is at all easy. On the contrary, by the very reason of its elusiveness it constitutes one of the most difficult of all problems. The Introspectionists have barely scratched the surface, and many of their conclusions may well bear revision. The point is that you can't solve a problem by merely denying its existence. The world would not get very far if the physicist, instead of assuming the existence of energy and making use of it in his experiments, would drop all his work because his five senses do not reveal it. True enough, no one knows just exactly what mind is. No one can put his finger on it or discover it after the most painstaking scrutiny of every portion of a dissected body. But we are using it all the time. The Behaviorist may not even like the very word "mind." That is his private opinion. Most people use the word and, I may say, have a pretty good idea of what it is, though they may agree with those who claim that you cannot bottle it up in a test tube.

Then take the question of consciousness. Professor Watson complains that he can discover no consciousness "in his laboratories" nor "in his subjects." Again we agree that there is no empirical proof for the existence of consciousness. But does that mean that it does not exist? Isn't that a mere begging of the question? We believe that consciousness exists. We go further and admit that our belief is based upon an assumption. To this the "scientific Behaviorist" may hold up his hands in holy horror, and dub us a hopeless medievalist. Well and good! But we have pretty good grounds for holding to such an assumption. *We assume that others possess consciousness because we ourselves are conscious.* It is the Behaviorist who is illogical when he claims that his subject does not have consciousness, unless the Behaviorist himself is void of consciousness. And if the Behaviorist makes such an admission, then any attempt at any reasoning whatsoever is absurd. Dr. Wolfgang Köhler, in his scholarly book "Gestalt Psychology," says: "One can never 'prove' conclusively the existence of an independent physical world." If that be true, then why deny the reality of the spiritual, which is far more elusive than the physical, when both ultimately must be assumed? Logic does not permit us to accept the one without the other.

Speaking of Gestalt Psychology recalls a very interesting conflict of thought in the realm of psychology, particularly between German and American scientists in this field. Watson, the American, is in opposition to Wundt, the German, and his school of Introspectionists. To-day Köhler, Koffka, and the German school of Gestaltists are challenging the American Behaviorists and are also criticizing many of the conclusions of the Introspectionists. But it is particularly against the mechanistic theories of Watson's school that they hurl their most deadly shafts. Their quarrel rests upon the principle that "to tear asunder stimuli and responses in an individual is to violate the subject." They hold that no organism behaves with a few dissociated parts, each of which can be studied as one examines the parts of a machine, but that it acts and reacts with its whole self. Therefore it is unfair to study an individual (and in all probability an animal) in a laboratory, since the chances are that it will not be at all natural under such circumstances. Religion agrees with the Gestaltists that life, to be appreciated and understood, must be viewed not from a small, circumspect angle, but must be regarded as a whole and from every possible viewpoint, *sub specie æternitatis*.

The challenge that Behaviorism offers Ethics is one that no Religionist can let pass by unanswered. "Men are built, not born," says Professor Watson. Give us your babies, he says, and we will place them in our laboratories, study their "squirmings," and "condition" them into artists, bricklayers, physicians, teachers, street cleaners, university professors, and what not. But then he assures us that "psychology is not concerned with the goodness or badness of acts, or with their successfulness as judged by occupational or moral standards." The plea for "conditioning" (another word for education) sounds very fine, but what parent will place his child in the care of an instructor for whom moral values have no meaning? I have noted in my own five-months'-old son many of the infant "squirmings" described by Professor

Watson and have profited greatly from the studies he has made; but he can teach me nothing when it comes to his training in the realm of ethics. Life is to a very large extent governed by the habits built up in childhood, habits that we learn from our environment, our companions, our instructors. What father or mother will regard training in the realm of morals as unimportant? I should consider such a parent guilty of unfairness to his own child; yes, as being directly responsible for its future unhappiness. There are enough unfortunate men and women incarcerated in our penal institutions, placed there because of criminal neglect on the part of parents or society, or both.

"Men are built, not born." This statement, like most catch phrases, is but a half truth, and, as such, is even more dangerous than a total misstatement. Of course men are "built." No one is born with an education or with a philosophy of life. These must be learned; they must be acquired often by patient and painstaking application. But men are also "born." Heredity unquestionably plays an important rôle in our physical and mental make-up. If it did not, how will you explain what is commonly known as "genius"? Who can explain a Lincoln, an Edison, an Einstein? If the average individual, or even the exceptionally gifted person, were to study and be taught, say, electrical engineering for a hundred years, would that mean that he would develop into an Edison? If I were to devote myself from now till doomsday to the study of physics, could I possibly develop into an

Einstein who revolutionized that field before he had attained his fiftieth year? Can a Beethoven or a Bach be produced at will? How geniuses appear in the midst of humanity remains one of the darkest of all mysteries. Training and education and "conditioning" do not explain them. Immediate heredity can offer no solution. Caruso was one of seventeen children in a family which exhibited no superior ability in music. The only possible answer to these mysterious aptitudes, the existence of which Professor Watson denies, may perhaps be found through a thorough study of the remotest ancestry of an individual. And that is manifestly impossible.

Another principle of the behavioristic school is that man is a "machine." In his concluding chapter on "Behaviorism" Professor Watson asks us to "try to think of man as an assembled organic machine ready to run." He then describes the various parts of an automobile, such as tires, wheels, axle, differential, engine, body. Once again Behaviorism is guilty of stating a half truth. Of course man is like a machine—to an important extent. The various parts of his body function similarly to the parts of an automobile. His fuel is the food which he consumes. His parts are the organs of his body. Like the parts of an automobile, his organs occasionally fail to function properly and must be repaired, sometimes even replaced. In time he will wear out and die, if in the meantime he is not violently destroyed. But there is one important difference, certainly an obvious difference, between man and machine. *A machine requires a driver.* No machine is self-winding. Some intelligent force must put it together, get it started, and keep it going. Religionists believe that such an intelligent force exists. It put the world together and keeps it going. It has also endowed man with part of that force, so that, within limits, he can keep himself going. He can protect himself from the cold of winter and the heat of summer. He can devise means, through a science called medicine, to ward off disease and remain healthy and alive longer. He can provide himself with comforts. Yes, he can *build the very machines* to which the Behaviorist compares him.

This brings us to another question upon which Behaviorism and Religion are in radical disagreement —namely, the question of free will. Behaviorism categorically denies the existence of any such force as free will. Man is merely a bundle of "squirmings." He is a slave to his environment, a victim of circumstance, a pawn in the relentless grip of a ruthless and meaningless destiny, without dignity, freedom, or will. He comes into the world with "reflexes" that respond automatically now to one and now to another situation that happens to arise. As a logical outcome of such reasoning man cannot be held responsible for his actions.

True enough no one has seen, tasted, felt, smelled, or heard anything that may approximate what we might call the "will." Behaviorism at least is consistent in its contentions. But is it practical? Is life possible, or, at least, can life be endurable in any society where the individual is not held responsible for anything he does? Logic is a two-edged sword. It leads to truth, but it may also result in the most naïve absurdities. After all, we must live in this world and, unless we want to spend that life upon some desert island, we must live side by side with our fellow men. And that is possible only in a society wherein men *are* responsible. I am reminded very much of the pessimist who argued for an hour upon the proposition that life is not worth while living. Why argue about it? If life isn't worth while living, there is a very simple way of bringing it to an end. Similarwise, why deny free will when your very safety depends upon the acknowledgment, whether actually or by implication, that it is a fact.

To be sure, I am not seeking to establish the proposition, manifestly absurd, that man is totally free. No man can live forever. No man can jump off the earth, unless he can be shot through space far enough to be out of the range of our planet's gravity. But we *can* take our lives or continue to live. We can earn an honest living or prey upon our neighbor. We can be honest, kindly, loyal, generous, or we can be dishonest, unkind, disloyal, miserly. Every law that is established by the State is based upon the principle that we are responsible human beings. And that is about as far as an intelligent conception of freedom of the will goes. The only trouble is that the

Behaviorist denies the "ego." He does not admit that there can be any such thing as an "I" or a "we."

I shudder to imagine what life would be like were it governed by the deterministic, mechanistic theories such as Behaviorism advances. Life without will, without meaning, without purpose, without fascination! Life as conceived of merely as an endless, monotonous repetition of stimulus and response, stimulus and response, push and pull, push and pull, to all eternity! What a cruel, cynical, inhuman conception of life this is! If I were forced to endure a drab, colorless, futile existence such as this, I should either make short shrift of it or turn to the childish illusions of the primitive ancestors of our race. The beautiful words of Wordsworth come to me:

> "Great God,'' he cries, "I'd rather be
> A pagan suckled in a creed outworn,
> So might I, standing on this pleasant lee,
> Have glimpses that would make me less forlorn;
> Have sight of Proteus rising from the sea,
> Or hear old Triton blow his wreathed horn."

Yes, even obeisance to idols, works of mortal hands, would be preferable to losing the grandeur and the magnificence which the contemplation of the spiritual affords.

If man does not possess will, what becomes of progress? If he is merely a victim of his surroundings and nothing more, why have education, which is a conscious attempt to lift man above his environment so that he might become its master instead of being its slave? What possible need can there be for initiative, a quality which we are seeking to implant into our young? Certainly this is an argument which no intelligent individual who is devoted to education can circumvent. Professor Watson contradicts himself every time he speaks of the Behaviorist "controlling" or "conditioning" other people's conduct. Who is to do the "controlling"? A machine "conditioning" another machine? How absurd!

Professor McDougall in his admirable essay, "Behaviorism Examined," illustrates the viciousness of a mechanistic philosophy by referring to the efforts that are to-day being made for abolishing war. "If mechanistic psychology is true," he says, "if all human action as well as all other events are strictly predetermined, it is perfectly futile for us to think, to plan, and to strive to prevent war; for war is either coming or not coming, regardless of what men may strive to do to prevent it or incite it. All of us may just as well relax our efforts; eat, drink, and be merry; for our thinking out plans, our Leagues of Nations, our World Courts, our Disarmament Treaties, our most strenuous efforts to realize the ideal of peace by aid of such plans—all alike are perfectly futile."

There is much food for sober thought in this statement of the noted psychologist, not only because it reveals the utter bankrupty of the mechanistic dogma, but also by reason of its bringing to the forefront of our thinking a highly important problem. The most eminent thinkers of our day have warned us that the world cannot endure another war. The white race will not in all probability survive another orgy of fratricidal combat. And the outcome of the struggle between war and peace will not be determined by the victory or defeat of the so-called militarists or pacifists. The problem goes deeper, in a realm the existence of which the Behaviorists deny—namely, *men's minds*. The issue is between those who believe that human nature does not and cannot change and those who maintain that it *can* and *does* change. On the one hand you have fatalism, determinism, and cynicism; on the other, faith, freedom of the will, and hope. The former are influenced by a psychology such as Behaviorism; the latter are guided by a system of thought such as Religion advances. For the sake of argument, let us admit that you cannot prove the validity of either. But realizing that you live in a practical, workaday world, *which will you choose?*

As I suggested at the beginning of this essay, I do not regard Behaviorism as a direct attack upon Religion *per se*. But it most assuredly advances a system of thought to which Religion by its very nature is essentially in opposition. Behaviorism is seized by those forces in present-day life which, while not directly challenging Religion and the Church, are nevertheless undermining their influence by spreading a form of thought which is subversive of a hopeful, vigorous, and optimistic philosophy of life. Its very subtleness makes propaganda of this kind sinister and dangerous. Perhaps the most serious consequence of the World War has been the fact that it has made men more pessimistic and more cynical. Behavioristic psychology, with its emphasis upon mechanism and materialism and its denial not only of the existence of the spiritual but of the capacity of man to progress, has contributed very largely to this spirit of futile fatalism. It has been welcomed particularly by those of little scholarly insight, whose ideals have been shattered by the unfortunate experience through which the world has recently gone.

Religion by its very nature cannot condone any such philosophy of life. Behaviorism is materialistic, denying not merely validity but the very existence of anything spiritual; Religion recognizes the physical world of matter, but is also conscious of the being and the truth of the spiritual. Behaviorism regards man as a machine, pure and simple; Religion is cognizant of the similarities between the physical make-up of man and a machine, but in addition endows him with a dignity which only the existence of a conscious ego can bestow. Behaviorism denies freedom of the will to the individual; Religion admits that man is governed by a will greater than his own, but that man possesses volition to a very large degree. Behaviorism is interested in "muscle twitching," nothing more; Religion, too, is concerned with observable physical reactions, but also recognizes the existence of a mental world within the individual. Behaviorism denies the existence of an Intelligent Supreme Being, since It cannot be confined within the limits of a test tube;

Religion posits the existence of such a Being as the explanation for the existence of the universe. Behaviorism asks, "What does a man do?" nothing more. Religion, too, asks this question, but is also concerned with what he *means* by his act. Behaviorism "asks for nothing to start with in building a human being but the squirmings every one can see in the newborn babe"; Religion asks for this, but also requires a mind which it may fashion into intelligence and a soul which it may mold into character. Behaviorism "is not concerned in the goodness or badness of acts"; Religion is most decidedly interested in this. Like Behaviorism, Religion is concerned with "controlling," but it seeks to control not only the body, but also the spirit of man.

Thus, it can be readily seen that there can be no peace between Religion and out-and-out Behaviorism. They are on "opposite sides of the fence." They begin with opposing premises, have contradictory conceptions of life and the world, view mankind from diverse angles, and seek the attainment of different ends. To the one man is as meaningless as a worm or a stick of wood; the other, while recognizing man's weakness and mortality, yet endows him with the courage to "make himself at home in the world," with the faith to overcome defeat and disappointment, with the hope that progress is not only a possibility but a fact, with an unfailing confidence in the fundamental goodness of man and his capacity to grow better as his intellectual insight is deepened and his spiritual propensities are clarified.

XIII

WHAT DOES BEHAVIORISM MEAN FOR RELIGION?

BY HARRIS FRANKLIN RALL

A RECENT writer has suggested that Religion has nothing whatever to fear from Behaviorism, since the latter is simply concerned with describing how living organisms behave. The solution is comforting, but it tells too little of what is actually going on. Behaviorism, like the idea of evolution in the last generation, has fitted in with a certain current temper of mind: the desire to be considered "scientific," the revolt from the intellectual, the emphasis on the "practical," the unwillingness to think about ultimate questions. All this, with the desire to be in line with the latest theory, has combined to make it popular. On the other hand, it has appealed to many by a method which promised advance by attention to the actual and concrete in a field where there had been an overplus of theorizing.

But, like evolution, Behaviorism is a "weasel word," one that can mean many things, and one whose undoubted scientific significance has been exploited in the name of a particular philosophy and of a strong anti-religious bias. Nothing, therefore, is more needed here than discrimination. This chapter is based upon a distinction between radical Behaviorism, which is an implicit philosophy, and the strictly psychological Behaviorism, which is a method of study. The former will be ordinarily referred to simply as Behaviorism. In studying this, primary attention will be given to the position of John B. Watson (as found in his volumes, "Psychology and Behaviorism") with reference in the second place to Albert P. Weiss, especially on the metaphysics of this Behaviorism (as found in "A Theoretical Basis of Human Behavior").

Three items call for attention in discussing Behaviorism and Religion: Behaviorism as a religion: Behaviorism as inimical to religion: Behaviorism as an aid to religion. In the first two cases, radical Behaviorism is had in mind; in the third Behaviorism as a psychological method.

BEHAVIORISM AS A RELIGION

About the last offense with which the Behaviorist would care to be charged is that of being religious. The origin of religion Watson finds in the laziness of certain men who wanted to get their living without work and so invented such superstitions as the belief in the soul and the supernatural. The successors of these medicine men are the priests and preachers of to-day, and the soul superstition as a religious survival vitiated all psychology until Mr. Watson appeared. Religion is the incubus of which humanity must be rid before progress is possible.

And yet there are good grounds for speaking of the Watsonian Behaviorism as a religion. In the stricter sense religion rests upon a conviction concerning some reality higher than man, more than the finite and the particular. Man believes that there is such a reality (in the higher religions, God), that in it lies the meaning of this world and the final controlling power, and that in right relation to this he himself can find his real life. In a broader sense, however, religion represents every effort of man to make himself at home in his world, to see it as a whole, to relate himself to that whole, and thus to find the solution of his life alike in terms of the good that he seeks and the way of attaining it.

In all religions three questions constantly appear. Put in a word, they are the questions of God and good and salvation. Let us phrase these so as to include all forms of religion, even those that dispense with God. (1) What is the supreme reality, the final power, that of which I must take account? (2) What is the highest good, the good which I most desire and which thus has the right to command my life? (3) How can I relate myself to that which is most real (or most powerful) so that I can get this good?

Now Behaviorism as Mr. Watson defines it is a relatively simple matter. It is a branch of natural science using the tools of natural science and only these. Its field of study is man. It studies man as a whole, not constituent chemical elements, nor cells, nor individual organs, as with the chemist and biologist and physiologist, but man as a unitary organism. And it studies simply his observable behavior—that is, the behavior observable by the physical senses and equally apparent to all. It inquires how man behaves physically and in relation to his physical environment, the relation being viewed as stimulus and response. It follows the right of every science to stake off a field for study and then investigate it.

But radical Behaviorism in actual fact is much more than this. Mr. Watson is a prophet, a preacher, an evangelist, a man with a faith and a program. He is not content with the observation of physical behavior by the physical senses. He is a dogmatic metaphysician. He declares that there is no reality which cannot be thus observed. He denies that what the senses observe may indicate a reality that is not physical: "The behaviorist cannot find consciousness in the test tube of his science." It follows necessarily that there is no consciousness, no rational self, no intelligence, no ideals, no purpose in man's conduct, no beauty, no moral goodness, no God. There is, of course, no argument here; Behaviorism ceases to be a scientific method and becomes a dogma.

Watson pays less explicit attention to this dogma than Weiss does. The latter develops the necessary philosophy of this radical Behaviorism in unmistakable fashion. All human activities, educational, vocational, and social, he insists, can be described or explained *completely* as the result of the same forces (and no other) as used in the natural sciences. Human behavior is simply "a form of motion," "belonging to a closed system of interacting forces." And all these movements, past, present, and future, are equally and absolutely determined. Human behavior "is a form of motion differing only in complexity from the motions and dynamics of physics and mechanics." "Poetry, religion, morality, affection, love, intellect" are simply "electron-proton configurations." All this is implicit in Watson also.

So far we have noted in Behaviorism not so much a religion as a philosophy, a dogmatic metaphysics of materialism. It is dogmatic because it does not use its point of view merely as an instrument for investigation, but asserts it as an unproved assumption. Such a theory, however, becomes a religion when it is taken as a basis for a philosophy of life and an answer to life's great questions as to the power that man may trust, the goods he should desire, and the way of help in their attainment. This radical Behaviorism does.

The behavioristic position at this point may be briefly indicated. Watson and Weiss both discuss behavioristic ethics and make suggestions as to the goal of man. Watson is quite vague. He talks about "behavioristic freedom," and making the world "a place fit for human habitation." Anything less vague than this would certainly involve Mr. Watson in great difficulties. For if this human world be simply one of physical stimulus and response, then what goods can there be except the physical, or material? We are told that man "is slowly to emerge into a being the like of which can nowhere be found in the animal kingdom." (We had supposed that man himself belonged to the animal kingdom. Is this simply a lapse in correct speech or is it a Freudian betrayal of a suppressed desire, whose presence might account for the violence of some of Mr. Watson's protests against the traditional conception of man?) "Greater development in three systems of habits forever differentiates man: (1) the number, delicacy, and accuracy of visceral or emotional habits; (2) the number, complexity, and fineness of laryngeal or verbal habits; (3) the number and fineness of his manual habits." So that which divides man from other animals and marks the line of his future progress is a matter of visceral, laryngeal, and manual habits. The accompaniments of these physical habits, which men have called truth and goodness and beauty, are, of course, without essential reality. The real item in Mr. Watson's golden age will be "bigger and better" physical movements, more complex activities of larynx, hand, and abdomen.

Mr. Weiss is more specific and less consistent. He sees not only what physics, biology, and social science are to do in furnishing the right physical environment, but he envisages an education that shall include training in ethics, literature, and the fine arts. Surely if these words have any significance here, it is because they refer to values, meanings, the appreciation of the beautiful, the good, and the true. But by what right does any man use such terms who has told us that there is absolutely nothing in the world but what can be described in terms of motion?

The heart of any religious scheme of things, however, must always be sought in its doctrine of salvation. Using religion again in the widest sense, the doctrine of salvation is the plan of help to which we pin our hopes. In this case the usual setting of the doctrine is changed. There are no higher powers with whom man may relate himself. There is, indeed, no discerning, thinking, choosing man to relate himself to these powers. Yet there is a theory of salvation upon which everything is built and in the end we discover a sort of a deity who presides over it.

The theory is relatively simple. All human behavior is a matter of stimulus and response. A human "personality" is simply the end product that is built up out of the habit systems thus established. We cannot change the response to a given stimulus, but we can change the stimulus. We can change the environment and so change everything. That means the social as well as the physical environment, friends and food and everything. What is more, we can associate with a particular stimulus which produces a certain response another stimulus of a given kind, sometimes a word for the object; when we speak the word "turkey" on Thanksgiving day or call the company to dinner, the mouth waters just as truly as if we brought out the bird itself.

Dr. Watson has a sublime faith in his doctrine of salvation. "Give me a dozen healthy infants, well-formed, and my own specific world to bring them up in, and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors."[1]

In this emphasis upon environment, in this insistence upon the plasticity of human nature, in the optimism as to what is possible with man, there is a considerable agreement with the Christian viewpoint as against the overemphasis on heredity and the conceits of nordicism. Of course, from Dr. Watson's standpoint he would find it difficult to say why the line between man and the animals just beneath him should remain "forever," since the physical organs are so closely similar. But there are two other and more important items that need comment here.

The first is the fact that for the Behaviorist there can be no use of ideas, ideals, reflection, reasoning, in fact, no use of the ethical or rational in influencing human conduct and character. It is hard to keep the strict Behaviorist position in mind in the discussion of such matters, and Mr. Watson himself is far from successful in this. How can he be, in a world of social beings where there is constant appeal to rational consideration? The fact is that he ends up his "scientific" theory with argument and appeal like an old-fashioned evangelist proposing a new-fashioned gospel, forgetting that his particular gospel allows only for physical movement. Words too? Yes, but bear in mind that while words may be substituted through proper association for certain physical situations and actions (for other stimuli), they are not signs of ideas or substitutes to convey ideas. They signify merely physical stimulus without, muscular action within. In the end motion in space, the strictly physical, is never transcended.

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[1] "Behaviorism," p. 82.

But it is not merely the materialism, it is the determinism of these Behaviorists that stands in the way. Theirs is a purely mechanistic scheme with one movement following necessarily upon the other in inevitable succession. In such a situation there is, of course, no hope of deliverance, no chance of bringing a change for better—that is, if you stick to your position. As a matter of fact Mr. Watson moves in two worlds. There is the mechanistic-deterministic world of his avowed theory, in which men are physical automata. But he has a "supernatural" world too, a world of freedom and rational consideration and choice and purposive effort in which Mr. Watson himself and his associates move. For if there were no thought, no reflection, no goals and purposive action, as Mr. Watson insists in connection with his lower world order, then there could be no Mr. Watson, arguing, denouncing, waxing scornful at the anachronistic medicine men of our day and the stupid psychologists whom he cannot convince. Theoretically there is with man nothing but physical action, seen in visceral, laryngeal, and manual habits. There is no chance to break through this ring and set before men the right ways of life, the goal of true freedom, as Mr. Watson does. There can be no such purposive and intelligent planning how to recondition those human beings who have gotten a wrong set of habits, for which Mr. Watson argues. Within the circle itself there is no hope. So Mr. Watson, without of course admitting it, possibly without realizing it, has recourse to a *deus ex machina*, a whole pantheon in fact, with himself at the head as the behavioristic Zeus. Lifted above the world of his own theory, he and his associates plan for this poor humanity, appeal with argument, set up goals, follow their purposes, and set themselves consciously and intelligently to secure these ends.[2] Mr. Watson may deny this, but in that case we should have to say that his words were simply muscular movements without meaning or possible reference to such a thing as truth, and his thoughts "highly integrated bodily activity and nothing more."

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BEHAVIORISM AS HOSTILE TO RELIGION

In a rather extraordinary passage[3] Mr. Watson asserts that his theory robs us of nothing in science, literature, art, or religion. Religions of the higher kind are centered, as before suggested, about the ideas of a God whom men may trust, the good that they desire, and the relation with this God and their world by which the good life may be realized. Point by point the central convictions of such a religion are negatived by radical Behaviorism. Of course it rules out the idea of God. That would apply equally whether you take a traditional view of some Monarch in the skies external to his world or think of an indwelling Spirit, a living Presence moving in all his world, one in whom goodness and power were one and who was carrying out his high purpose for the universe. The higher goods of life are equally excluded. Mr. Watson thinks that love would mean just as much as before—just as much if the lover sees only a physical organism whose declarations of affection are simply laryngeal movements without meaning, called forth by purely physical and equally unmeaning stimuli!

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[2] See "Behaviorism," pp. 38-40.

[3] "Psychology," p. 325.

The heart of religion is found in the conviction that man may have fellowship with this higher Being and in such fellowship, and, in right relation with fellow men, may achieve the fullest and highest life. This too is excluded. There is no God who can be known in truth and love and moral likeness. There is no free and rational and discerning human being who can respond. The physical universe is the only reality, including our physical selves. There is no thought by which man can know God, there is only in man a form of bodily activity a little more complicated than is found elsewhere. There are no rational relations of loyalty and good will between man and man; the only possible relation between beings in this world is physical stimulus and physical response.

Religion's hope and religion's demand are equally impossible for the radical Behaviorist. You cannot ask men to show good will to one another; you cannot summon them to loyalty, call them to reverence, invite them to trust, ask them to coöperate. It is true you can use these words, or others. Mr. Watson points out "how potently cut and dried verbal formulæ serve as stimuli for shaping our own reactions." And he justifies their use.[4] But for Mr. Watson, these words are simply physical stimuli which have been fitted through association to take the place of other physical stimuli and so secure a certain reaction. And as the stimulus in the last analysis is purely physical, so is the result. It is not a question of that inner spirit and attitude which religion demands, but simply a form of physical behavior.

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Of course, the hopes of religion are out of question. The kingdom of God that Christians desire is fundamentally a realm of the spirit, the achievement of a certain richness and quality of life in which man's fullest and highest self is attained in and through right relations with God and fellow man and the world of nature. Mr. Watson's kingdom of heaven is a material universe where certain physical organisms achieve finer and more complicated sets of habits in relation to a surrounding physical universe and in response to the physical stimuli which this affords.

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[4] "Behaviorism," pp. 40, 41.

In other words, his heaven seems to be a matter of "bigger and better" machines.

BEHAVIORISM AN AID TO RELIGION

So far our discussion has been concerned with radical Behaviorism. Common to all Behaviorism is the idea that there is a fruitful method of psychological study in observing the behavior of the human organism. Peculiar to radical Behaviorism are the psychological theory that there is only one kind of study possible, that of physically observable behavior, and the metaphysical dogma that there is only one kind of reality—namely, physical being. In asking what religion may gain from Behaviorism, we are turning from radical Behaviorism to that which is simply a special mode of psychological study whose value is to be tested by its results. What has this Behaviorism to say to religion?

Construed in a broad way it points to a field of study too much neglected both by those who interpret the Christian religion—that is, by the theologians—and by those who seek the effective expression and application of religion in practical life. Let it be acknowledged in the reaction from the old dogmatism some have been going to an extreme in our day. They would reduce religion to pure experimentation. But religion is more. It begins with a faith, and faith remains its heart and life to the end, no matter how much knowledge experience may bring. Religion arises when man finds that which is high and holy, when he is convinced of its reality and its right to command, and gives to it reverence and loyalty. In the Hebrew-Christian line, beginning with the great prophets, it is by way of ethical insight especially that man comes to this vision of the Highest, and the act of faith is the daring belief that the morally good is the surest revelation of God.

The mistake of traditional theology has been to suppose that the object of this faith was a sum of doctrinal ideas handed over *en masse* by an externalistic sort of revelation. It has failed to see that these insights have come through experience and that, with all the guidance and inspiration that the past can bring to us, we must to-day win our insight in the same way. The deed of faith must be repeated by each generation. And the experience must be not only a renewed one but an increasing one.

But one other step is needed here. We must distinguish between the fundamental conviction of religion and the way in which that conviction gets its full content and definite application. For the Christian the heart of faith is the conviction that goodness and power are one; more specifically it is the faith that in Jesus Christ we see what this Eternal Goodness is, that in him we see the God whom we trust, that good to which we aspire, and the way of help. But it is amistake to think that this is the conclusion of the matter; rather this is its beginning. Such a faith is the basis for adventure for experiment and exploration, for finding larger truth and gaining richer life. It tells us, for example, that God is good, but it does not tell us how this God works in his world. It tells us to hope and trust, tells us that life is to be ours, but it does not point out in detail how such life is to be achieved. There is here no ready-made salvation for a passive will and no ready-made knowledge for a lazy mind. It is rather a summons to experiment and study.

And here is where science comes in and the method of science. The fundamental conviction of faith lies beyond science. The idea of Harry Elmer Barnes, that the size of Betelgeuse has enough dynamite to blow up the Christian idea of God is equally mistaken with the idea of some hopeful Christians that somehow the latest advances in physics have demonstrated the Christian faith. But the scientific method has its definite place for religion. It tells us to look upon our world and find out how things behave. How does man behave when he is religious, and how does the universe respond to his faith and conduct? What is that religious behavior which will secure the largest response, the richest development of life? What is man himself as seen in his activities and possibilities rather than according to some dogmatic supposition? What is God as we seek to learn his ways in nature and history and in the response to man's faith? In other words, we must have an open-minded study of all kinds of behavior, if we are to know God and man, sin and salvation. Theology has dwelt here too much in the realm of dogmatic declaration and theoretical speculation.

The doctrine of salvation is an especially clear illustration. The heart of the question is simply this: How can man so relate himself to his world, the world of God and nature and brother man, that he may gain the fullest life? The basic Christian conviction is that of a God of forgiving good will. But this conviction, though the heart, is not the whole body of this doctrine; it furnishes the beginning of this life, but does not map out the way. What we need is a study of how things actually go, of behavior, human behavior, individual and social, of divine behavior in response to man, of the behavior of nature. We must know especially about man, what he is, what can be done with him, from environment condition his behavior, what environment he needs. These are but a few of the matters where we need thoughtful study to supplement the wisdom that the past offers. And must we not pursue this same road of observed behavior for a fuller knowledge of God? There is only one way of revelation. It is not by doctrines dropped from the skies. It is by man's response of heart and will to the highest that he knows; it is by man's study of how his world responds to him, whether there is a Highest that answers his response in turn.

Here, then, is where we may learn from Behaviorism, not in the form of Mr. Watson's crude materialistic metaphysics, but as a method of the study of man. It is not something new, and it is but one of the fields of study from which religion has to learn. But it is of special interest to theology because it deals with man, and it does suggest one line along which theology must proceed. Of course, we must include vastly more than mere external observation. To mention but one matter, religion is supremely concerned with the realities and the values of the inner life, not with that which can be grasped by the senses and quantitatively measured. And for another matter, the purely impersonal and objective attitude, so far from being a desideratum, as in science, is a hindrance. He alone can fully understand and clearly see who shares the spirit, and he alone can know who gives himself personally in trust and devotion.

PART III

BEHAVIORISM AND METAPHYSICS

XIV

BEHAVIORISM AND EXPERIENCE[1]

BY EDGAR SHEFFIELD BRIGHTMAN

PROGRESS is difficult to define; but almost every kind of progress has one trait in common—namely, that of increasing fidelity to experience. Through such fidelity science has advanced and invention has been made possible. Invention is not the creation of something entirely new, but it is the expert utilization of the materials offered by experience. The great artist is the man who can see what experience contains of beauty and harmony. Religion rises to higher levels in proportion as man is able to attain more satisfactory experience of God. Experience is the best teacher.

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[1] *Bibliographical Note.*—The following works, which are those most frequently quoted in this chapter, will be referred to by the author and date, as indicated in parenthesis after the title of each book.

J. B. Watson, "Psychology from the Standpoint of a Behaviorist." Philadelphia: J. B. Lippincott Company, 1919. (Watson, 1919.)

J. B. Watson, "Behaviorism." New York: The People's Institute Publishing Company, 1924. (Watson, 1924.)

J. B. Watson, "The Ways of Behaviorism." New York: Harper and Brothers, 1928. (Watson, 1928.)

A. P. Weiss, "A Theoretical Basis of Human Behavior." Columbus: R. G. Adams and Company, 1925. (Weiss, 1925.) A second edition of this work appeared in 1929, but "the point of view of the author is little changed from that presented in the first edition," according to Nagge in *Psychological Abstracts*, 3 (1929), 472, Abstract 3468.

Since we are always having experience, it may seem strange that it is constantly necessary to rediscover it. But we have a tendency to imagine factors which are not actually present. The unsophisticated thought of primitive man as well as the sophisticated medieval philosophy were both loaded with beings that could not be found in experience. Such were the spirits and demons of mythology and the "substance" of scholasticism. Modern thought is a constant intellectual house-cleaning in which more and more of these unexperienceable objects are thrown away. Locke, Berkeley, and Hume progressively exposed the defects of "substance." Kant, starting with experience, nevertheless retained things-in-themselves which were beyond all experience. The idealistic movement through Fichte and Schelling and Hegel made unknowable things-in-themselves superfluous. Modern physics has dealt severely with material substance.

A similar movement has occurred within the field of psychology. The soul, for scholastic psychology, was a spiritual substance which somehow supported experience without itself being any part of experience. The psychology of associationalism was the outgrowth of the empirical criticism of substance. The psychologies of self, purpose, and Gestalt are recent attempts to find meaningful unity within experience to take the place of the transcendent soul. Here enters Behaviorism, which lays claim to being the only sincere and consistent friend of experience. In this sense it seems to be heir of the ages. Accordingly, let us now consider the claims of Behaviorism from the point of view of their loyalty to experience.

I. WHAT IS BEHAVIORISM?

The behavioristic movement is so many-sided that it is very difficult to formulate a definition on which all Behaviorists would agree. But all may agree on one preliminary distinction. Behaviorism as a method should be distinguished from Behaviorism as a metaphysics of mind. The behavioristic method is that of studying the behavior of organisms as our only means of knowing their "minds." This method has always been used, and no one disputes its value. But behavioristic metaphysics goes far beyond this and asserts that "mind" actually is nothing but observed behavior.

Metaphysical Behaviorism, made famous by John B. Watson, challenges critical scrutiny. It interprets psychology as a study of stimulus and response in the physiological sense,[2] or as "a study of what people do."[3] The unsophisticated mind would naturally suppose that people think, feel, and will. But the metaphysical Behaviorist recognizes only those acts of the organism which can be observed as bodily processes.[4] A. P. Weiss, a Behaviorist who defines terms much more clearly than Watson, says plainly that mental states are to be "classified as physical states."[5]

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[2] Watson, 1919, pp. 9, 11. Nothing is gained by pretending that Behaviorism is spiritual and religious. Such an article as that of G. W. T. Patrick, "Should Religion Stand in Fear of the Behavioristic Psychology?" in *The Christian Century*, 46 (1929), 1146-1148, is unfair both to Behaviorism and to religion by its failure to define terms precisely and to take sufficient account of actual movements. The fact that the author accepts both a form of Behaviorism and a form of religion does not justify him in giving the impression that Behaviorism as such is consistent with a belief in God.

[3] Watson, 1928, p. 8.

The evidence of introspection, which has commonly been taken as revealing the presence of consciousness, is reduced by Watson to a kind of behavior, the "verbal report method."[6] He denies that there is any objective evidence for consciousness, and regards it as a behavioristic heresy even to say that behavior is consciousness. He wishes to make perfectly clear that Behaviorism has no room for consciousness at all.[7]

II. Why Did Behaviorism Arise?

Psychology is a young science. Aristotle wrote about it, but it did not attain independence of philosophy and theology as an experimental science until about the last quarter of the nineteenth century. Like the young of all species, psychology experiences growing pains and the storm and stress of adolescence. It is still far from systematic unity. Some think that its basic subject matter is souls; others, sensations or selves or Gestalten or psychophysical organisms. There is no agreement about the relation of psychology to philosophy, religion, or morals. Some make psychology the supreme arbiter, and some relegate it to an unimportant position.

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[4] Watson, 1924, p. 4, etc.

[5] Weiss, 1925, p. 5. See K. S. Lashley, "The Behavioristic Interpretation of Consciousness," *Psychological Review*, 30 (1923), 237-272, 329-353.

[6] Watson, 1919, pp. 38-42.

[7] Watson, 1924, pp. 12, 105. See J. B. Pratt, "Matter and Spirit" (New York: Macmillan, 1922), p. 121.

In this confusion, it is not to be wondered at that psychologists are looking for a method that will lead to established facts and definite progress. The other sciences have certainly advanced by objective observation and experiment. But observations which can be verified can occur only when there is a subject matter capable of social verification. Now, the mark of most traditional psychology is the lack of a socially observable subject matter. It has been believed that psychology must rely on introspection. But introspective data can be observed only by the person who has them, while he has them. This fact which lay at the basis of Titchener's structuralism, the then ruling psychology, provoked the behavioristic protest. On account of the limitation of introspective method, the Behaviorists concluded that "consciousness" could not be made the basis of a science. If consciousness exists, it certainly is not socially observable as physical things and processes are. It cannot be perceived by the senses.[8] Hence either consciousness does not exist or psychology must be radically different from the physical sciences. The Watsonian Behaviorists have chosen the former alternative. Most other psychologists have chosen the latter.

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[8] Watson, 1924, p. 3. Watson, 1928, p. 3. Watson's earliest criticism of introspective method is found in his "Behavior, An Introduction to Comparative Psychology" (New York: Henry Holt and Company, 1914), p. 8 in particular.

Another source of Behaviorism is Watson's studies of the lower animals. He found that rats, for instance, could be investigated only by observation of their behavior, and he determined to try the same method on men, implying that human nature and rat nature were all but identical. It may be pardonable to comment on this in the words of an unknown poet (would that I could give him his due credit!):

> "Rats in a maze are Watson's data.
> That's
> Why Watson in a maze observing rats
> Strikes me as mildly comic. Not that he
> Confesses to bewilderment like me,
> Though we are trapped in the same Mystery!
> No, Watson solves all mysteries with ease,
> And in the face of God's infinities
> Finds Life—*a reflex sniffing 'round for cheese.*
> To which there is but one reply, and that's
> RATS."

III. WHAT ARE THE MERITS OF BEHAVIORISM AS AN ACCOUNT OF EXPERIENCE?

Behaviorism aims at rigid loyalty to observed experiences. Anything which calls our attention to facts is, in so far as it does that, both useful and welcome. No belief is even probable which is not in some way verified by experience. Behaviorism has contributed to a better appreciation of experience in at least six ways—namely, by being empirical, activistic, progressivistic, holistic, socially minded, and critical of numerous tendencies which need criticism. Let us consider these points in some detail.

To say, first, that Behaviorism is empirical is to call attention to its foundation principle—namely, that of accepting only what can be experienced and objectively verified. Thus it is able to make predictions about future experience and to control it.[9] In doing this, it has popularized the elements of physiological knowledge. It has dwelt on the truth that the body is extremely important and that every "psychological" process has some sort of bodily expression. The empirical emphasis of Behaviorism is very wholesome as against scholastic and Freudian speculations.

Since experience is a constantly changing scene, Behaviorism perceives, secondly, that "mind" is active.[10] The whole stimulus-response situation is one which implies that mind (*i. e.*, the organism!) is interacting with environment and that the organism is so plastic as to be capable of developing more and more highly organized activities.

This suggests that the active organism is, thirdly, capable of almost indefinite improvement. It is this progressivism, this hope for a healthier and more efficient humanity, which rallies to the standard of Behaviorism thousands who understand little or nothing of its theoretical implications, but who yearn for improved conditions of human living. It is quite possible that, like the prophets of many cults, Watson goes too far in his claims. When he tells us that a baby from the dynasty of the Pharaohs could be developed into a typical Harvard student,[11] he has wandered from observable experience into emotional guesswork. But his emphasis on environmental control gives some basis for racial progress.

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[9] Watson, 1928, pp. 7-9.

[10] "Mind is in the last analysis action." R. C. Givler, "Psychology" (New York: Harper, 1922), p. 12.

A further contribution of Behaviorism to the understanding of experience is the fact that, fourthly, it views "mind" as a whole. While it is analytic, it is not exclusively so. Purely analytic theories, like traditional associationism and much structural psychology, have aimed to be empirical, but they have ignored one of the most characteristic traits of experience—namely, that wholes have properties which their parts do not have. You cannot adequately explain the beauty and power of a poem in terms of its words taken analytically. This "holistic"[12] principle is, to some extent, recognized by Behaviorism. Watson makes it the basis of the distinction between physiology and psychology. The former science deals with the separate organs of the body; the latter, with the whole man in action.[13] Thus Watson refuses to attach importance to the size of the brain as a separate organ; brain weight is proportional not to intelligence, but to body weight, he holds.[14] Behavioristic psychology, then, is concerned with "concrete whole activities"[13] and marks a step in advance of purely analytic psychology.

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[11] Watson, 1919, p. 12.

[12] The term is derived from the Greek word meaning "whole" and has been given currency by Gen. J. C. Smuts in "Holism and Evolution" (New York: Macmillan, 1926).

[13] Watson, 1919, pp. 20, 13, 40, 48, etc.

Fifthly, the Behaviorist has emphasized social experience. Prof. John Dewey has probably done more than any other American in recent times to socialize education and ethics. His psychology is in the main behavioristic.[15] Behaviorism holds that the organism stands in stimulus-response relations with its environment. Now, a large part of the significant environment of an organism consists of other organisms. All human beings develop by interacting with others. Behaviorism, therefore, has played a large part in the recent phases, not only of education, but also of sociology. It should be remarked parenthetically that Behaviorism sometimes overdoes the social emphasis and leads to what Dr. H. D. Hill calls "the adoration of groups."[16] In so far as Behaviorism suggests that man is all physical body related to other physical bodies with no spiritual life, it falls short of the truth of experience, both individual and social. But the story of its defects is coming later and we must not anticipate.

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[14] Watson, 1928, p. 39.

[15] In his "Essays in Experimental Logic" (Chicago: University of Chicago Press, 1916), Professor Dewey says: "I should like . . . to point out that the essays in their psychological phases are written from the standpoint of what is now termed a behavioristic psychology, though some of them antedate the use of that term as a descriptive epithet." (P. vi.)

[16] In *The Atlantic Monthly*, 143 (1929), 759-764 (June, 1929).

Behaviorism has served, sixthly, to keep psychology within bounds by its vigorous criticism of concepts and tendencies that are insufficiently grounded in experience. Watson, for instance, opposes the popular Freudian psychoanalysis. With his eye on verifiable experience, he speaks of "the myth of the unconscious."[17] In one of his most delicious passages he points out that psychoanalysts teach their patients to talk freely without teaching them to behave sensibly. He says that he often feels, "in talking to analyzed people, that the analyst has gone off and left the larynx running without hitching it up to the rest of the body."[18] Again, Watson is famous for his attacks on the concept of instinct, which may be found in all of his works. It is true that sometimes his arguments are amazing, as when he criticizes the belief in inherited traits as a sort of substitute for immortality. But usually the aim of his opposition to instinct is to do away with the belief in entities which cannot be experienced. One does not have to agree with his claims of almost unlimited power for environmental stimuli in order to profit by his appeal from instinct to experience.[19] At times, Watson is more critical and cautious than most physiological psychologists. It is wise discretion which warns us that "we do not yet know enough about the functioning of brain and spinal cord to draw diagrams about its functions."[20]

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[17] Watson, 1928, p. 93.

[18] *Ibid.*, p. 107.

[19] *Ibid.*, Chapter II, "Why the Behaviorist Has No Instinct," and especially p. 26.

IV. What Are the Defects of Behaviorism as an Account of Experience?

What has been said thus far might be construed to mean that the present writer is a believer in Watson's theories. He finds, it is true, much that is fruitful in them; but he holds that there are weaknesses in the behavioristic account of experience which far outweigh its merits. In this chapter, we shall center our thought on the fundamental failure of Behaviorism to be loyal to its own principle of experience. If the chief virtue of the Behaviorists is that they have called us away from abstractions and mythologies to experienced fact, their chief vice is that they have not been willing to tell the whole story of experience. They have appealed to Cæsar; to Cæsar they shall go.

The behavioristic program and achievement are characterized, on the one hand, by intense concentration on certain factors in experience, and, on the other hand, by a twofold disregard of experience, sometimes asserting more than experience asserts and sometimes recognizing less than experience contains. This statement is subject to attack on the ground of the ambiguity of its central term, experience. If one runs over in one's mind what experience meant to Hume,

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[20] Watson, 1924, p. 38.

Kant, John Stuart Mill, F. H. Bradley, William James, and Josiah Royce, one may easily come to doubt whether it has any unified historical meaning. But for our present purpose we do not need to reckon with any of the distressing ambiguities of the past. We are now concerned only with the modern Behaviorist.

The Behaviorist, perhaps cannily, does not use the word "experience" a great deal. But he employs a very important equivalent — namely, observation. Yet what has he gained? Observation is just as obscure as is experience. If we search the Behaviorist scriptures for a definition of observation, we find little help from Watson. He often dwells on his belief that it is Behaviorism's glory. He says, indeed, that it occurs "with the aid of our sense organs," and that when scientifically controlled it is superior to the unaided observation of the amateur.[21] But he does not make clear the essential point for his own position—that is, why observation is not to be regarded as a conscious process.

Weiss goes much further in the direction of definition. He states explicitly that "I am observing," "I am responding," and "I am experiencing" mean the same thing. Since a response is for him a movement "in the electron-proton continuum,"[22] it is obvious that observation and experience are also nothing but the movement of matter. If we ask what special kind of movement, Weiss tells us that "a response is a unified group of contractile effects, which as movements form the basis of the coöperative, receptor-effector (sensori-motor) interchanges between individuals."[23] Omitting embroidery, we may say that Weiss makes all experience consist of physical facts, the movements of electrons and protons.

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[21] Watson, 1919, p. 25.

[22] Weiss, 1925, p. 196.

When we examine Weiss's hypothesis, a strange revelation awaits us. Behaviorism is to be empirical, observational, based on verifiable data. But all experience and observation consist of electrons and protons which are not, in any natural sense of the word, matters of empirical fact or objects of possible observation. Who ever saw an electron moving? Weiss acknowledges that "the electron-proton hypothesis is a guess as to what would be observed visually with a microscope of sufficient magnifying power." This physical monism is a "fundamental assumption."[24] But a hypothetical assumption is certainly not an immediate observation! Strange as it is for a view that was to be based on objective observation of behavior to have to confess that it is based on guesses, it is stranger still for it to assert, with Weiss, that there is "a continuous series in the cosmic movement continuum . . . in the future forever."[25] Somehow behavioristic knowledge extends far beyond actual experience.

Singer, likewise, holds that in the process of thinking, however passive the thinker may appear, "some molecules in him may effect an interchange of atoms while he thinks."[26] But this certainly does not advance the Behaviorist appreciably toward his goal of making mind an observable object. Singer's hypothetical exchange of atoms is totally unobserved by the thinker and by the psychologist who observes him. It is an assumption incapable of verification, save in speculative thought. Thus it is evident that Behaviorism asserts far more than experience asserts. Hence, if it is to be defended, it cannot be on the basis of observation, but only on that of hypothetical theories.

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[23] Weiss, 1925, p. 143. [24] *Ibid.*, pp. 41, 48. [25] *Ibid.*, p. 26.

There is yet another sense in which Behaviorism says more than experience justifies it in saying. It has constructed a vast theoretical edifice on a very slender experimental basis. The authority for this statement is Watson himself. He concedes that "the experimental evidence for this view (*i. e.*, that thought is implicit bodily processes) is slight," and that Behaviorism has "meager experimental results."[27] It may seem unfair to capitalize these frank admissions; and it would be unfair if Watson made a modest use of meager materials. But he both builds an immodestly pretentious structure on an admittedly insufficient foundation, and also makes the extravagant claim that no other view has any experimental support.[28]

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[26] E. A. Singer, "On Mind as an Observable Object," *Journal of Philosophy*, 9 (1912), 208.

[27] Watson, 1919, p. 326. Watson, 1928, p. 62, etc.

[28] Watson, 1928, p. 62.

With one hand he goes beyond experience to support his own view, and with the other he denies the experiences which contradict it, all the while asserting that he alone is loyal to experience! The situation is humorous.

We have shown that Behaviorism asserts more than experience asserts. One further comment should be made on this point. In going beyond what has been observed, Behaviorism is indeed untrue to its own logic, but is true to the logic of reality. When a Behaviorist like Bode says that "the inferences of earlier situations are the flesh and bone of our present situations,"[29] he is holding, quite in the idealistic manner, that thought conditions all our observations. Surely the mind must always go beyond present experience in order to interpret that experience.

On the other hand, Behaviorism recognizes less than experience contains. Too easy a mechanistic psychology is gained, as C. J. Herrick has recently remarked, "if we throw the troublesome mental factors out."[30] What then are the factors which are thrown out? The whole of the observing mind! The Behaviorist considers the movements of objects, but he omits the qualities which we actually experience—the reds and greens, the sounds and smells, the smoothnesses and roughnesses. He considers the reactions of the organism, but he omits the way the reactions feel.[31] He considers particular events, but he omits universals and ideals, while inconsistently asserting that Behaviorism is universally true. Although his experimental basis is admittedly narrow, he rejects the experiments of all other psychologists.[32] Such an arbitrary limitation of factual data would render progress impossible in any science. Watson creates on the mind of a leading British psychologist, F. C. Bartlett, the impression that "'conditioned reflex' is the Behaviorist's only principle."[33] His attitude elicits from A. O. Lovejoy of Johns Hopkins University the telling phrase (especially directed against Bode), "the Behaviorist's fine *a priori* contempt for the facts of experience."[34] Such sweeping statements as Watson's that there is "no evidence that exists"[35] well deserve Lovejoy's characterization.

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[29] B. H. Bode, "Consciousness as Behavior," *Journal of Philosophy*, 15 (1918), 452.

[30] C. Judson Herrick, "The Thinking Machine" (Chicago: University of Chicago Press, 1929), p. 172. Although a mechanist, Herrick regards psychology as "the science which deals with conscious processes" (p. 173).

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[31] Occasionally a Behaviorist like Ralph Barton Perry will admit "feeling," but dismiss it as unimportant. "The way it *feels* to listen or hear has little if anything to do with the matter." "Present Philosophical Tendencies" (New York: Longmans, 1912), p. 285. But Perry is not a Watsonian; he declines to identify mind with a physico-chemical process; see "Reply to Professor Calkins," *Journal of Philosophy*, 24 (1927), 683-685.

[32] Watson "decided before beginning to consign to the wastebasket the work of his predecessors." Watson, 1924, p. 107.

[33] *Mind*, 36 (1927), 81.

[34] A. O. Lovejoy, "Pragmatism and the New Materialism," *Journal of Philosophy*, 19 (1922), 10.

[35] Watson, 1928, p. 96.

Indeed, it may be said that the Behaviorist takes experience for theory and theory for experience. Anyone except a dogmatic metaphysical Behaviorist will perceive that his own present consciousness is an undeniable and immediately experienced fact. And yet the Behaviorists call this immediate experience an "assumption."[36] The only truth in this position is that when you see another person, you cannot see his consciousness; you have to assume it. But you cannot see his implicit responses or his atoms and electrons, either. No science is possible if you confine yourself to what can actually be observed, and draw no inferences from your observations. What, then, becomes of science if you assert that the present consciousness, which is the starting point of all knowledge, is itself an assumption?

In its metaphysical, Watsonian form, then, Behaviorism is false to its supposed interest in experience. In restricting its data to what can be observed by the senses under experimental conditions, Behaviorism has sacrificed all of the nonsensuous aspects of experience—all thoughts, feelings, volitions, purposes. It is thus a movement away from the empirical, a surrender of fact to method. The nonsensory aspects of experience are just as real facts as the sensory aspects. The Behaviorist substantially declares that he will treat as experience only such data as can be found under the conditions of behavioristic experiments. To agree to look for nothing but behavior does not prove that nothing else exists.

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[36] Consciousness "is a plain assumption, just as unprovable and just as unapproachable as the old concept of the soul." Watson, 1924, p. 3. See Weiss, 1925, pp. 387, 388.

Thus, the Behaviorist claim to be scientific raises the question whether it is scientific to ignore facts. In other words, shall we twist the facts to suit our methods, or twist our methods until they suit the facts? If there are facts of conscious experience which are impossible to find by behavioristic methods, does it not seem more empirical and more scientific to consider a liberalization of method rather than to drop overboard the inconvenient facts?

For illustrative purposes, let us consider briefly the behavioristic treatment of two characteristic human experiences—namely, memory and thought. If Behaviorism can give an adequate account of these fundamental processes, it is better than we have pictured it as being.

Watson freely admits that the case of memory is crucial for his theory.[37] He vacillates curiously in his attitude toward the very use of the word. In 1924, in a moment of unusual insight, he asserted that the term memory "has no place in an objective psychology."[38] But both before and after that date he finds it useful.[39] There is a more serious vacillation in the Watsonian definition of memory. On the one hand, it is "the retention of verbal habits."[40] To use an illustration not Watson's, in my college days I learned Hamlet's speech to the players. I can still repeat it. I have retained my verbal habits; I "remember." On the other hand, he defines it as being able to do again what one has done before. He uses the illustration of a child who has learned to ride a kiddie car and after having it taken away from him for six weeks tries to ride it again. If he succeeds, he remembers. But his verbal reports about whether he can ride are no real index of his memory.[41]

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[37] Watson, 1928, p. 64.

[38] Watson, 1924, p. 166.

[39] Watson, 1919, pp. viii, 301. Watson, 1928, p. 64.

Now, whether you think of memory as retention of verbal (visceral-manual) habits or as the power to skate next winter after having learned last winter, you are studying "organic memory," but are omitting the most essential feature of consciously experienced memory. A person might easily say or do again what he had said or done before without remembering the previous event at all. Retention or repetition of habits is not memory. Memory always involves what Bertrand Russell calls "the feeling of familiarity."[42] But even Russell's description is not sufficiently explicit. To remember is not merely to have the feeling that this present experience is familiar. That feeling may be no more than a symptom of the fact that I ought to remember, but can't. Students often experience a familiarity feeling in the presence of examination questions, but without memory. The essential feature of an act of memory is the recognition that the present experience refers to a similar past experience of the same person. This factor is made central in the standard dictionaries of Giese, Eisler, and Lalande, in Hastings's "Encyclopædia," and in most textbooks which essay any definition of memory at all. And it is the factor which Behaviorism not only fails to consider, but in the nature of the case cannot consider. To recognize is to be conscious that I am now having an experience which is like one which I had before. This recognition is not a verbal claim or expression, but a mental act which is intelligible only as conscious experience. Behaviorism, therefore, fails as a theory of memory. It has no place for the conscious recognition that this present experience refers to a past experience.

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[40] Watson, 1924, pp. 180, 197. He adds that "manual, visceral, and verbal" organization is necessary to a complete reaction, p. 181.

[41] Watson, 1928, Chapter IV, especially pp. 65, 66.

[42] B. Russell, "The Analysis of Mind" (London: Allen and Unwin, 1921), p. 161.

Can the Behaviorist do any better with the experience of thinking? In some of his work, Watson has created the impression that for him thinking consists entirely of movements of the larynx.[43] He has used the beautiful word "laryngeated" as a synonym for "thought of."[43] But he also recognizes that thinking is more than "talking to ourselves,"[44] for two reasons: first, we may whisper without laryngeal activity; and secondly, almost any bodily act may serve as a conditioned word substitute.[45] Watson admits that some of his expressions have given too restricted a view of thought as exclusively laryngeal.[46]

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[43] Watson, 1924, p. 183. [44] Watson, 1928, p. 59.

Now, it may be true that some form of bodily movement accompanies all thinking. But there is no adequate evidence for any such system of conditioning as would provide one or more specific bodily movements as a substitute for every word in the dictionary. In this aspect of his theory of thought, Watson goes far beyond experience. On the other hand, he falls short of the experienced fact of thinking when he reduces it to words or their substitutes. Whatever words or symbols are used by thought are not themselves the thought; thought always involves consciousness of meaning and of relations. The verbal or other behavior, apart from that consciousness, is unintelligible, like the repetition of the words of a language which one does not understand. The attempt to describe thought apart from conscious apprehension of meaning is futile.

If, then, we are to take seriously the extreme behavioristic view of experience, we must see it with all conscious sensation gone, with no conscious purpose, no recognizing memory, no conscious feeling or thinking. Experience consists of blind bodies responding to stimuli from a gray world. This is truly, as Hegel called Schelling's Absolute, "the night in which all cows are black."

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[45] Watson, 1924, p. 204. See also his article, "Is Thinking Merely the Action of the Language Mechanisms?" *British Journal of Psychology*, 11 (1921), 87-104.

[46] Watson, 1924, p. 183.

V. BEHAVIORISM AS A PHILOSOPHY OF EXPERIENCE

That such a distortion of experience as metaphysical Behaviorism should exist is more remarkable than that it should arouse attention. It aspires to be objective empirical science. In reality it is a hypothetical metaphysic. The internal weakness of the system is perhaps best revealed in the fact that it is essentially a philosophy which builds on contempt for philosophy. Nothing is more naïve and unconcealed than Watson's scorn for metaphysics. He thinks that philosophy is passing and that nothing ever comes from it. We should look to scientists and business men, not to poets, philosophers, and dreamers. The thinking of the latter group never leads to action, but only to more words.[47] A student of history gasps as he reads this judgment and thinks of the social influence of Milton, or of Locke and Rousseau. To subtract from the world what poets, philosophers, and dreamers have contributed would be to change the entire course of history. One can account for the Behaviorist's statement only by assuming that his materialistic philosophy of value distorts his vision of the facts.

What is back of this blinding animosity against philosophy? One does not have to read far in Watson to answer this question. The belief in consciousness is derived, Watson holds, from "a kind of subtle religious philosophy." Consciousness is related to the soul and to God.[48] Watson seems to be animated by a secret (and, we may add, well-grounded) fear that if he were to grant the reality of consciousness, he would be logically driven to believe in God. Since God is for him an annoyer instead of a satisfier, the divine existence must be denied. Hence the existence of consciousness must also be denied. Behaviorism may, therefore, be regarded as a rationalization of the desire that there be no God.

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[47] Watson, 1928, pp. 14, 86.

A Behaviorist, or indeed any psychologist, on reading this chapter, might be inclined to discredit it as "armchair psychology." The chapter contains, I concede, no new experimental data. It was written in a chair with arms, at a desk. It is actual armchair psychology and philosophy. But what does one do in an armchair? Not much experimenting and not much "behaving," it is true; but at least one may either sleep or think. If the occupant of the armchair sleep, perchance he will dream, and his dreams (Watson to the contrary notwithstanding) may inspire love or hate, freedom or slavery, peace or war. If he think, he may wander into realms remote from practical life, or he may concern himself with the understanding of experience and experiments. The armchair philosopher is, then, precisely as much needed as is the laboratory man. Without experiments there are no precise data. But without thoughtful interpretation there is no precise meaning of the data.

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[48] Watson, 1924, pp. 1, 2. Weiss, 1925, p. 78, also shows antipathy to religion.

The present chapter is intended to interpret the facts and theories of extreme Behaviorism, and to show that, while such Behaviorism contributes much to the recognition of certain neglected or misunderstood aspects of experience, nevertheless, on the whole, it is a misrepresentation of experience, adding to it features which it does not possess and taking away from it features which it does. One who has confidence in the ultimate triumph of truth will be certain that the vogue of extreme Behaviorism is a passing phase of thought.

XV

BEHAVIORISM AND PERSONALITY

BY J. W. LANGDALE

THE late Prof. William North Rice asserted that preachers and other makers of public opinion should be required to study what he called historical astronomy. For he believed that reflection upon the sheer extent of things would yield a patience which would emancipate us from much bewilderment, misgiving, and waste of energy spent in fighting for an unimperiled faith.

Psychology is the youngest of the major sciences. The first lecture on Psychology that William James heard was delivered by himself—he having been trained in medicine. Psychology is changing more swiftly than any other field of knowledge and promises to continue to change for a long time before reaching much finality.

The wholesome contributions of James and Ladd came to be obscured by the imported emphasis upon the abnormal as developed by Janet, Freud, Jung, and Adler. Concentration upon such abnormality invited a reaction. It began to be said that all this was too introspective for our objective age. Methods were devised for studying the conduct of persons and animals by observation and experiment. In 1912 appeared the teaching that all we know about one another is that we are bundles of activity in which there is no more place for the initiating power of intention than there is in the processes of respiration and digestion. That which had been differentiated as conscious and unconscious was explained as a varying degree of reaction to different stimuli.

For three reasons, this Behaviorism became almost immediately popular in the United States. It appeared to be simplicity itself to an age that did not wish to spare much time for thinking. It was based upon the same processes of experimentation that are producing dazzling results in the physical world. It was congenial to a skepticism which, following the break-up of the war, was ready to embrace any system which attempted, and perhaps desired, to explain the universe in materialistic terms, ungoverned by any Final Cause.

Especially did Behaviorism tornado through the colleges in a devastating sweep. Teachers who knew that such aberrations had raged before complacently waited for its subsidence, more concerned about the alarm of the parents of the students than they were about the students themselves. They were reminded of the way in which the thought of good John Locke, that sense experience is the foundation of all knowledge, had been carried to a skeptical conclusion by David Hume. Before Hume died, across the channel and the plain, Emmanuel Kant had begun to substantiate with compelling force that the thinking active self is the presupposition of all knowledge and indeed the creator of knowledge. In due time was to appear Herman Lotze to maintain that there is no consciousness without a subject, no thought without a thinker, no activity without an agent.

In a similar cycle are now coming forth the Gestalt and other schools, which have one element in common, that they magnify personality. They build upon the complexity, relatedness, wholeness, dynamics of life, which Behaviorism neglected and at times denied. In our country, William McDougall, with ability second to none, espouses a purposiveness which gives meaning to the whole scheme of things. Scholarship again appears about to countenance faith in the reality and importance of the human spirit.

Yet to give attention to a declining Behaviorism is no vain exercise of whipping an expiring horse. Behaviorism is the offspring of a degraded conception of personality, which if not elevated is sure to spawn something else to plague man's higher life.

To be sure in the elimination of the Divine by the mechanistic, man is left without a superior in a specious exaltation. If all creation is but one vast automatism of mechanical and bio-chemical processes, then the robots we call human beings are most significant of all.

If what we have called God is only a projection of man's unachieved ideals upon the dark screen of the unknown, an idealization of his impulses which are frustrated by the facts of experience, a Fancy which man creates for his conceit and comfort to compensate himself for his inadequacies, then as the artificer of all this man may esteem himself to be more than he has regarded himself to be.

Common sense speaks up to say that there is a fallacy somewhere in such sophistry.

Though the Behaviorists would explain that it is only the conditional reflexes of the writer which repudiate these "ifs," repudiate them he does, and vehemently because of what he thinks to be common sense.

The debased and sometimes sneering estimate of higher human values which usually accompany the acceptance of Behaviorism is another witness to the presence of a fallacy. Fine souls (one cannot avoid the language which they allege to be obsolete), who feel themselves compelled to accept Behaviorism intellectually, are aware of this debasement by their own impoverishment. What has been called the quantification of life—the most and the biggest of everything—may conceal from the flippant and the reckless the loss of any quality of life. None the less it is there.

Consciously and unconsciously what we do to-day is quite largely determined by what we think will happen to us to-morrow and on the distant day. But if the force behind the universe is only impersonal energy, immortality is exposed as another illusion. If thought, feeling, and act are only physical responses to physical stimuli, there is no personality to be immortal. It follows that if there is to be no distant day, people generally will take the most of all they can get now.

Destituted of personal responsibility, morality becomes expediency and religion may be looked upon as the graft of priestcraft. No standard of ethics remains except desire and the effect upon man's organism of the gratification of desire. Duty, so far from being the stern daughter of the voice of God, becomes merely the average idea of what should be, which idea in the name of personal liberty is to be demolished as a tyrant.

Andre Maurois has described how Byron, obsessed with the idea of fatalism, lets life take its course, with no attempt at regulating living. Thus he came to have an enfeebled will and a perverted mind, a something which had no faith in itself, as why should it have?

Byron wrote in his diary: "I am a lover of Nature, yet neither the music of the shepherd, the clashing of the avalanche, not the torrent, the mountain, the glacier, the forest, nor the cloud, have for one moment enlightened the weight upon my heart, nor enabled me to lose my own wretched identity in the majesty and glory around and above and beneath me."

They who have been responsible for the discipline and well-being of college life in these recent difficult years have had reason to think often of Byron.

It may be argued that the same attitudes which generated Behaviorism in large part may have produced these perplexities. After allowing for that, is it not obvious that there is a disturbing causal connection between the prevalence of mechanistic Behaviorism, with its repudiation of responsibility, and the multiplication of psychopaths and suicides?

Though it be proved that these undesirabilities have been the consequences of Behaviorism, if Behaviorism is true, Behaviorism we must accept. Our sympathies are with Tolstoi, who, when pressed by the dignitaries of the Greek Catholic Church, in the weakness of his approaching demise, to make concessions in his beliefs which he had before refused to do, replied: "Two and two do make four, you know, even when one is dying."

We have been thinking that the establishment of the world-wide good will, the abolition of industrial evils, the observance of law, call for a motive and a stimulus which only religion can supply. None the less facts never must be twisted to conform to our convenience in the fancied interest of religion or morals or what-not. If man is only one of the mechanical contrivances in a mechanistic universe, we must proceed to find within mechanical forces some discipline by which to inspire character and regulate conduct other than the discipline upon which we have depended.

But is Behaviorism true? That its way of looking at experience affects conduct is in itself a contradiction of its thesis that there is no mind to govern conduct. Moreover this violation of the unity which usually prevails between truth, beauty, and righteousness invites skepticism of its validity.

He who pushes behind the patois which Behaviorism has fabricated to describe itself, a patois of polysyllables which may hypnotize the unthinking into a hasty acceptance, speedily comes upon its inadequacies.

The specialist who spends his evening at a Philharmonic concert in one prolonged attempt to identify the tone of a single instrument will receive less pleasure and will also miss the totality evoked by the peerless Toscanini. If he proceeds to allege that this one tone has produced the symphony, obviously he is offering an over-simplified explanation for the complexity of the performance.

When a scientist much more learned than myself tells me that the reason a hen sits upon her eggs is that she has an inflammation which is soothed by contact with the smooth cool eggs, and that a capon if irritated by cayenne pepper will likewise hatch a brood, I cannot deny those facts, but I am sure he has not said enough.

The Gestalt psychology grows out of many experiments upon babies, demonstrating that, so far from a series of responses combining to compose an organism which behaves in a definite manner, from the time that responses can be first observed there is an organism. Each of our smallest actions, incidental to any important action, has to be learned by repeated performances, but it is an organism which functions from the beginning. Accordingly the deduction is that human nature starts as a self-organizing entity, which potentially can interpret, synthesize, value, and purpose.

I submit some conclusions I reach when naïvely I consider human nature.

The Behaviorist tells me that my friends are mechanisms so fixed in their reaction to the stimuli of their environment that I can predict precisely what they will do in a specified situation.

I cannot think of my friends as mere mechanisms.

The noted biologist, Vernon Kellogg, remarks that when he studies human nature in the laboratory it seems to him quite mechanistic, with a behavior largely controlled by physical conditions as stimuli. When he leaves the laboratory and meets his wife and child in his home, he recognizes that they too are physicochemical centers, but something more, much more, qualitatively as well as quantitatively.

Nor can I predict what my friends will do in a given situation. Indeed, they tell me that they themselves cannot be sure what they will do. For within them is a transcending "plus" which may initiate a departure in their conduct.

The Behaviorist tells me that my every thought and deed definitely proceed from complexes which are beyond my control. These complexes cause me to act in conformity with my inherited tendencies as modified by my training.

The impression his dogmatism makes upon me is that he desires to force me to concede that his whims are indisputable facts, when I am aware of an inner sense of values which assures me that he speaks less than the truth.

I am conscious of sensations which I receive from the outside, conscious too that I can determine in part the surroundings which supply these sensations.

I construe the value of these experiences. I compare them with those I have had before and with those others talk about. I discharge my energies in the direction of those I prefer. Highest of all I construct for myself ideals toward which I strive and a faith after which I aspire.

Thus I integrate and develop a personality. It grows and changes with the years. I learn some things and forget others. I acquire some passions and lose some I had. Yet throughout all this, I am the same continuous entity. It was I who did things when I was a boy which now seem strange to me, who now do things that would have seemed stranger to me then.

That is, I am more than the Behaviorist makes me out to be.

Count Keyserling, in trying to sustain his contention that the American ideal is an animal ideal, patronizingly remarks that it is entirely to be expected that Behaviorism would originate in the United States where the people find nothing within themselves which would necessitate any other theory.

Not so do I know my fellow countrymen.

In proportion as they are what we call intelligent and conscientious they are the more disposed to deny that consciousness is wholly and chiefly some automatic arrangement for the recording of sense impressions. They create as well as receive, and reach out for more than is supplied. At their highest they are quite independent of outward events. They make these mean for them what they want them to mean, according to the system of values by which they measure life. The initiative of the spirit and not the constraint of the surroundings is finally decisive with them. They are a good deal vaster and more varied personalities than the Behaviorist can describe or even comprehend.

Though the sponsors of mechanistic Behaviorism have turned out to be charlatans, we should avail ourselves of every value it has disclosed.

Behaviorism has demonstrated the need for more study of human nature. Many of us seem to fear to take a long, honest look at ourselves. We are content with haphazard and dogmatic views of the mysterious qualities of human nature. In consequence our knowledge of human nature is not nearly so clearly assembled and systematized as is our knowledge of physical nature. Thereby we have deprived ourselves of truth and power.

Again Behaviorism teaches us that the observation of human nature is difficult. The temptation is always around to compose a theory in accordance with our desires rather than to construe conclusions according to the facts. The investigation of human nature requires training, practice, and an elimination of prejudice to a degree beyond anything many have dreamed to be necessary. The establishment of the Institute of Human Relations in Yale University with an endowment of several millions of dollars is a practical recognition of this difficulty. So also is the reported determination of the Rockefeller Foundation hereafter to devote all its resources beyond those required to complete its medical program to the promotion of better human relationships.

Behaviorism has also convinced us that the mechanistic has its place in human nature. The exaggeration which amounts to untruth in Behaviorism is its assumption that the section is the whole, the partial the complete. Yet it is true that whatever we are is rooted in a physical organism which functions as does the organism of animals. We are born with highly complicated hereditary tendencies, out of which develop our various instincts almost without any consciousness of the process. We are played upon by sensations from the outside and the impressions made are conditioned by experiences we have had from previous sensations. In what may be called the lower levels of our existence, Behaviorism is a fairly just representation of reality.

In all this, however, we are integrating a personality, which can and should utilize the mechanistic portion of itself for its advantage. This personality is ourself, our soul, which has often been supposed to be a mystical substance within us which eludes location.

That we have come to recognize that we know personality in ourselves and in others by what it does, by its thinking or imagining, by its walking or eating, does not diminish the fact that personality is.

Surely in this recognition there should be no occasion for again fighting our way through the fallacy, as we did in the evolutionary theory, that, because we have come to understand more of the process, the Agent and the Purpose of the process can be dispensed with. When it is said that the joy I have in the achievements of my children is a byplay of my autonomic nervous system or that the pain I have in their disappointments is an oversecretion of adrenalin, the case has not been stated adequately.

All the truth there is in the claim that behavior is an adjustment to environment requires that environment to include the whole range of reality. For multitudes of noble souls there is included in that range a satisfying relationship to a Higher Power beyond and within them, and a sacrificial devotion to the truth, beauty, and goodness of which He is the source.

Many propositions are easier of acceptance than that these noble persons are deluded by a trick of nature. When they talk to me about the irradiation of their souls and the enrichment of their purposes they affect me as did the man who persuaded me to enter Chartres Cathedral instead of studying longer from the outside the mechanism by which the windows were constructed.

In dealing with the development of character there certainly should be more coöperation between ministers of religion and the scientists of this new knowledge.

For instance, consider the illumination there is in the knowledge as noted by the psychologist that the disposition of the mind is to seek for equilibrium. How much depression and discouragement would have been avoided had we known that any ardent expression of a passion to the point of fatigue is quite sure to ensue in an opposite attention and action. In this knowledge there is explanation and it may be avoidance of much irritability, cruelty, carnality, and drug-addiction.

Again, how valuable to the Christian teacher is acquaintance with the law of human nature, which Psychology has experimentally substantiated, that a stimulus, which has not produced much reaction, may become effective if repeated, especially if repeated with the importance of the length of time intervening kept in mind.

While taking all advantage, however, of the opportunities for correcting, controlling, and developing life from the outside by scientific methods, we ought to avoid as a plague the notion that there is no longer any place for the free initiative of a creative spirit. Such a spirit within us is real in a world of law, and waits to be realized more and more in the creative Intelligence and Will, which is behind and within the universe, using the mechanistic as an expression of that which is Vital, Purposive, and Loving.

XVI

HAVE SOULS GONE OUT OF FASHION?

BY RUFUS M. JONES

ABRAHAM LINCOLN said in his famous Peoria speech: "You may repeal the Missouri Compromise; you may repeal all compromises; you may repeal the Declaration of Independence and the events of history, but you cannot repeal human nature."

So, too, the philosopher, or the psychologist, may very well from time to time change his phraseology and his formulation for the central realities of life; but whatever may be the passing language fashion of the time by which the inmost core of personality in man is described, the thing itself abides and resists all attempts to "repeal" it, or to obliterate it, or to ignore it. The fashion of describing "souls" will alter many times in the future, as it has altered many times in the past history of the race, but that ground-swell surge in us that voices itself with the words "I" and "me" will break through and assert its reality and its claim however the terminology shifts and changes.

We have recently been reminded that the soul is a "myth," but a "myth" that carries along such a magnificent trail of light and splendor as the "soul" of man does may well prove to be an extremely *live* myth. There would be as much justification certainly for the phase, "the myth of the atom," or "the myth of the germ-cell," or "the myth of gravitation," as there is for "the myth of the soul." At the same time there has been so much of myth, legend, muddle, and rubbish written and spoken about the soul that one cannot wonder that the long-suffering reader and listener revolts, cries, "Hold, enough," and in his wrath charges the whole account up to mythology. Mythology there certainly is in the long story, but that answer is a too easy one for the profound and stubborn problem before us.

"Animism" is one of primitive man's earliest theories to account for motion and activity. It means that all beings and even things that move and act have "souls" or "spirits" within that "animate" and direct them. By a natural generalization this inside "animus," or "soul," is extended to all striking phenomena in the universe. The "angry" river that rushes on with destructive power has an "animus." The volcanic mountain with its explosions of destructive force has its mighty "spirit" heaving within. The electric storm cloud is the seat and habitation of a wrathful "animus." Mythology has poetized this child-minded explanation and it has held its place through the ages, and has again and again defied the onward march of scientific thought. There is a larger stock of "animism" in the minds of the peoples of the earth to-day—even the civilized ones—than we who believe in the nobility and dignity of man like to admit. For centuries in the thin light of this animistic theory man's "soul" was thought of as "an inside self" that used the body as its dwelling place, could on occasion, especially in sleep or trance, slip out of the body and do business on its own hook, and could probably "survive" after the death of the body and have a ghostlike existence in the dim habitat of disembodied souls. The mystery religions gave a fresh impulse to this theory, traced the origin of the "animus" to a divine realm, and gave vogue and fascination to methods of purification, liberation, release, and salvation of the soul with promise of its final "return" to its lost divine estate.

Plato raised the doctrine of the soul to a very much higher intellectual level than that attained by popular animism, or by the teachings of the mystery religions. Plato described three types of soul-functions, and he sometimes even seems to imply the existence in man of a "trinitarian soul"— *i. e.*, a triply divided soul. The lowest functions are the appetites and passions, whose seat is in the region below the diaphragm. On the second level are the courageous attitudes which are located in the heart, and on the third and highest level is the intellect, which has its seat in the brain. The intellect, or mind, is thought of by Plato as an offspring of the Eternal World-Mind. It is possessed of an innate capacity to produce out of itself universal Ideas. The universal Ideas organize all experience into permanent unities of thought, and these unities of thought in man's mind correspond to the mind-patterns according to which the world was made, so that the mind in us is forever related or kin to the Mind that is the source of all reality, all beauty, truth, and goodness in the universe. The essential "soul" for Plato is this *mind reality* in man, without which there could be no truth, or beauty, or love, or goodness for him.

Aristotle gave the soul a new formulation and inaugurated a new stage in the history of psychology. For him the soul is the *vital principle*, the moving force of the body. But it is not a cheap, crude "mover." It does not operate as an outside pushing force. It is "an unmoved mover" acting within man. It moves the body by producing from within attractive aims and goals and purposes to be accomplished. It thinks thoughts and ideals, and the body moves to realize them. I think of myself, for example, as seated in the train and then run to catch it. The soul is thus the essential form or potentiality of the body. But Aristotle assumes that there is at the apex of the soul what he calls an "active reason," which could have had no earthly origin. It is not receptive like the senses; it is originative and creative. It thinks it own thoughts as God does. It is a divine and Godlike capacity. This active reason in man, which Aristotle introduced but did not explain, came to have an immense influence on medieval Christian thought and on scholastic philosophy. It was a short and easy step to conclude, as most Christian thinkers of those earlier times did, that this active or creative reason, the highest capacity in man, is not only like God, but actually is derived from God—is in fact something of God in man. Some thinkers called this highest creative capacity "the divine Spark'' in man's soul, some called it ''the Apex of the soul,'' or ''the Ground of the soul,'' or ''the soul-Center,'' or ''the inner Light,'' or ''the Shekinah'' in man. Aristotle was the most unmystical philosopher that ever lived, and yet his doctrine of ''active reason'' furnished to the great mystics of the Church the intellectual basis for their mystical approach. There is, these followers of Aristotle believed, something of God in the very nature of the soul, an unlost and inalienable spiritual capacity.

René Descartes, the great French genius of the early seventeenth century and the founder of modern philosophy, set forth the classic formulation of the soul as ''a *thinking substance.*'' It was not a new doctrine with him, but it was freshly and vividly interpreted and defended by the famous Frenchman. When Descartes called the soul ''substance,'' he did not mean by the word what we mean when we speak of ''worldly goods'' as substance. The poor prodigal in the parable ''wasted his substance in riotous living,'' but a little later ''he came to himself,'' and therefore the other kind of *substance* was still in working evidence. Few words have ever played a greater or a more mysterious rôle than this word ''substance.'' It is a fine illustration of what Francis Bacon called ''an idol of the forum,'' which is a tendency to have words govern thoughts rather than thoughts words. Nobody ever quite knew what he meant when he conjured with this lordly word ''substance,'' and John Locke admitted as much when he said that substance is "a hidden something, I know not what, in behind."

The soul as *substance* is absolutely unlike matter, which is the other kind of *substance*, and which is extended in space. The soul for Descartes is not extended, it does not occupy space. It is, like a mathematical point, without dimension. Its one attribute is thought. It is not dependent on the body. It remains identically the same through all the experiences of life. It neither influences the body nor is influenced by it. It is an immaterial and indestructible substance which God has created and endowed to be a finite thinker of thoughts. Descartes' soul conceived as unchanging substance, as a mysterious entity without any size and entirely sundered from matter, solves none of our real problems, but introduces more mysteries and more puzzles than any other conception man has yet proposed. This "soul" of Descartes *has* fortunately "gone out of fashion."

Having "lost" this old-fashioned kind of soul, which would not be of any use to us if we had kept it, it is important, as the next step, to see if there is any new "fashion" in souls which seems likely to offer us any promise of help and relief. A "soul" that is only "a hidden I know not what," that is essentially *identical* from birth to death, and that is an undimensional entity on which to hang ideas, may as well "go" with good riddance. What we want in the place of this "idol-of-the-forum" type of "soul" is a genuine *self* that can become what it actually does become and can do what it actually does do in the process of our lives as persons. We are too practical to be satisfied with mathematical-point souls, which seem as unreal as "a grin without any face," as impossible to discover as a stick that has only *one end!*

One of the most striking facts of our human experience is *knowing that we know.* We link up every fact that we know with the further consciousness that *we* know it. There is a well-known story of a man who went to market with his cart and oxen to sell a load of potatoes. Having sold his potatoes for good money, the farmer (it happened in ante-prohibition days) indulged too freely in the tavern liquor of the period. The oxen wandered about unguided with the owner lying in a drunken stupor on the bottom of the empty cart. Meantime a passer-by, seeing a good team of oxen going about with no driver, detached them from the cart and drove them off. When the farmer began to "come to" and in his half-awakened consciousness observed the fact that there were no oxen yoked to the cart, he drawled out the following confused reflection: "I don't know exactly who I am. If I am Bill Simkins, as I thought I was, I've lost a yoke of oxen; but if I ain't Bill, I have found a good cart." The trouble with the perplexed farmer was that he did not quite succeed in coming sufficiently to himself so that he could link up the scattered facts of observation with a self that could weave them into a single web of integrated experience with the added characteristic trait of personally knowing that he knew them.

We do not need to insist on an absolutely *identical* self that never alters from the cradle to the grave, for that comes to be an absurd identity, like the old substance theory. What we want, and what we must have if we are to have *knowledge* at all, is a more or less permanent nucleus of a self that genuinely accumulates and saves up the past, binds it with the living present, and at the same time anticipates a coherent future, all of which are felt to belong to *the same self*, or at least to a self that is near enough "same" to preserve its feeling of identity—like Jericho Billing's boots, which, during the twenty years that Jericho wore them, had new tops five times and were resoled fifteen times, but remained through all the flow and welter of time the *same* pair of good old, comfortable boots.

Nobody wants the absolutely unalterable, static self of the old dead theories. What we want is the kind of a self that will really account for *us* and will explain the incontrovertible fact of *knowledge.* Each one of us looks out on his world from his own particular point of view, with peculiar interests and with a novel shade of meaning that remains forever *ours*. Each one of us, furthermore, has his own unique inner life. We feel the inner flow of it in our ineffable way. We should be "lost" if we had anybody else's inside processes in place of our own. We have our very own aspiration and ideals, and we feel the ground-swell surge of our own will sorting, selecting, and deciding what act among all possible ones is to be *our* act. More central still, perhaps, is that august interior sense of obligation which cannot be obliterated without disrupting personality itself, that *sui generis* command of duty, which we lay upon ourselves, and the "fumbling" of which produces a feeling of remorse that, when it rises into its full power, sweeps aside all question and debate about the reality of a responsible self. This self belongs exclusively to *one* person. It is not shared by many as we share our "things." It is private, in a way in which our house is not. It is insulated, until it chooses to communicate or transmit what it sees or thinks or feels or believes. It is more than something owned; it is the *owner* of what is owned.

The demands of *knowledge* are no less insistent than are the demands of the inner core of our being that makes us forever *us*. The primary condition of any knowledge whatsoever is the first-hand conscious certainty that we know what we know. Facts of knowledge do not float about in the air on their own hook as clouds do. We cannot call anything *knowledge* until somebody knows it and knows that he knows it. The three weird sisters in Greek mythology had one eye among them which they passed about in turn for each one to use when an object of special interest came in view. The one that for the moment had the eye was the one that recognized objects. But, weird as they were, we cannot imagine one of the three sisters saying that she recognized the approaching figure to be Hercules, because she had the testimony of the other two sisters that she, the first sister, knew it to be

Hercules, though she herself did not know that she knew it!

One of the most striking features of *knowing* is the process of bringing many items from different sources together into a single unity. There is nowhere else a unity like this unity revealed by the knowing mind. All other unities are unities made up of parts that lie outside each other and conjoin side by side. The unity of the knowing mind is an indivisible and integral whole in which everything that is known is known together in a single pulse of thought. To divide is to annihilate and destroy. The knowing mind is at every moment a psychic integer, never a shower of shot or a puff of mind dust. A subject that knows an object that is known can be discriminated in later reflection, but when we *experience* the knowledge as a living fact there is a unifying, foundational self that underlies the artificial division of seeming parts—a subject and an object in indivisible unity. Knowledge is not born until the consciousness of a self knowing an object is born, with the added condition that it knows that it knows!

But the unique type of mind that can know in this fashion—whether we call it "soul," or "spirit," or "self"—is not a mysterious entity, or substance, in lonely isolation in behind or up above our thoughts and feelings and decisions. It is not a thin abstraction. It is the concrete, living, active, dynamic mind which knows itself in and through all that it knows. Outer and inner aspect, the knower and the known, are not two different parts, but forever one living unity, no more to be taken apart and exhibited in separation than the convex side can be taken away from the curve.

This concrete, continuous, cumulative self, forever inheriting the past and always big with the future, is an essential reality for any explanation of knowledge, but it is no less essential in any adequate account of the consciousness of *time.* We cannot locate an absolute, mathematical present. Whenever we try to seize or to hold a *now* with no width to it, it is gone while we try to locate it. It no longer *is;* it just now *was.* Any present that we can experience includes an immediate past, a passing present, and an anticipated immediate future. We hold these three tenses together in a pulse of consciousness and span the "was," "is," and "will be" in a living, palpitating moment that has considerable width to it. We see this process best in music. Here we rise above the single notes and hold them together in a time-transcending unity in which we also feel the harmony and significance of the music. Here again is a kind of unity possible only to mind.

It is no less striking in the case of memory. We not only recover an event which occurred in the past, but we think of it as in the past and in *our* past and yet as being re-lived again now in the present, while we ourselves, living through the original experiences *and* its revival, span and unite the old past and the new present in a time-defying achievement. The past, once it has passed, is dead and gone for everything but a mind like ours. It and it alone can *save* the past and resurrect it to a new life.

That curious experience which we call "meaning" something, is, again, another instance of an essential trait that only mind can account for. Whenever we perceive, imagine, remember, or think an object or event, it comes to us with a peculiar "meaning." We know it, recognize it, twig it, because we know what it "means." It "means" *this;* it does not "mean" that. That curious consciousness of "meaning" is another case of mind-spanning. We could never have it if we caught the object all alone in isolation. What we do is to put it in a setting, or a context. We interpret it in the light of the class to which it belongs, or by the way we intend to act toward it, or because we feel its halo of relations. In any case, some one mental reality holds many aspects together in a single pulse of living experience and knows what it *means*, by embedding its object in a wider fringe or context such as is possible only for a mind.

I am quite willing to let "the animistic soul" of primitive man, with its dim cast of mythology, go out of fashion. I can, too, calmly say "good-by" to the abstract soul-substance, for, like the old man who had a stroke of apoplexy and lost his mind, but "didn't miss it very much," we should hardly know that we had lost anything, if this poor, thin, mathematical-point soul dropped out. But this concrete, dynamic, unifying self which inherits the past and anticipates the future—and at the same time spans them both—that knows and knows that it knows, that is the central core of our identity and the august arbiter of what for us is true and beautiful and good—that type of a soul-self will never go out of fashion, for if it did, it and it alone would be there to *know* that the fashion had changed and to be the *judge* of the new fashion that was being inaugurated.

XVII

BEHAVIORISM AND FREEDOM

FRANCES J. M'CONNELL

In the study of any system which proclaims itself as virtually final truth, or as any degree of philosophic truth, for that matter, we do well to ask as to the fundamental assumptions of the system. Especially when a thinker is declaring himself an innovator or a discoverer must we be careful to look at his assumptions. It is a tactic peculiar to such discoverers to point with scorn to the assumptions under the conceptions which he is professing to displace, while ignoring the fact that the innovators themselves are making precisely the same or similar assumptions.

The Behaviorist makes the same assumptions as do those of us who are not Behaviorists. He makes at least three which he must have if he is to think at all. He takes for granted himself in a measurably like-minded community of persons; secondly, a common-to-all, a plane on which he meets others; and thirdly, the trustworthiness of human reason. The Behaviorist never seems to ask himself if his utterances square themselves with these fundamental postulates. At the instant when he is ruling out the self he is taking himself as a self, and gives himself earnestly to proving to other selves that no selves exist. Indeed, the Behaviorist has a veritable nest of assumptions to which he holds fast with unshakable grip.

My theme has to do with freedom. The Behaviorists assume freedom as a power of the self to choose between different causes. To be sure, the Behaviorist protests that this is not so—that there are no selves as such, but only responses to environment by a physical organism. Nevertheless the Behaviorist is seeking to make that idea itself clear to selves by proof or argument which assumes freedom. The only consistent course for the Behaviorist is to proceed with men as if they were nothing but material things, and then utilize the physical forces which will produce desired changes in those things. On his own basis the only effect a thought can have is to set up a series of physical changes which will involve the result aimed at. The difficulty here is that such changes give thought a power to which it can lay no claim on the Behaviorist basis. For the Behaviorist the significant fact is that a word, for example, is accompanied by laryngeal changes, which spread themselves through the organism as ripples widen in a pool. We pass by words as embodying content while we remark that all this complex process implies for him who seeks to change a man's mind (whatever man and mind are) a picking and choosing among various physical stimuli —and such picking and choosing involves the assumption of freedom. If a Behaviorist wishes to convert non-Behaviorists, he must select and utilize the physical stimuli which produce Behaviorism in place of those which produce non-Behaviorism. On the theory before us, Mr. John B. Watson is a Behaviorist because he is the seat of physical impulses which produce Behaviorism, and the writer of this article is a non-Behaviorist because he is the seat of physical forces which produce non-Behaviorism. Beliefs, in this theory, are products of the working of physical powers. Only that, and nothing more. Of course all this is infested by swarms of inconsistencies of the sort which Hume worked through in his skepticism, and which have met logical disaster in every generation since. They have the persistency which becomes possible when readers too generously allow thinkers to make what assumptions they will, and then to use these very assumptions to deny the existence of assumptions. I pass all this by, however, and remark that along with the other assumptions of Behaviorism freedom is assumed—at least enough freedom to select the impulses which make toward Behaviorism.

By this time the Behaviorist is out of all patience. He tells us that, to recognize the truth of his teaching, we have only to "look and see." Psychology has suffered too long from the introspective method and has found release by looking away from the inside to the outside. Behaviorist psychology takes persons as things and studies their reaction to stimuli.

There can be no doubt that it is well to look away somewhat from the inside to the outside; but why limit such looking to merely physical changes in a physical organism? The institutions of mankind—literature, art, the state, all the voluntary associations of society—are outward expressions of what is on the inside of man's mind, created by the conviction that the race can select from its environment and organize into institutions what expresses and satisfies its own needs. All this, however, the Behaviorist brushes to one side. This is not what we are to look at and see. We are to look at and see physical changes between men and environment taking place according to the demands of physical laws. The aim of Behaviorism is in part to make psychology more scientific. The difficulty is that the Behaviorist drags in so much metaphysics. We are told to limit ourselves to what we actually see. Now all that we see are changes taking place with more or less regularity. We never see a cause, or a law. The Behaviorist seems to think he has put all believers in freedom to flight when he tells us that we never see freedom. Who ever says we do? We see changes taking place. We behold a man—or what we thought to be a man until we learned that a man is a sort of integrated center of responses to outside physical stimuli—come up to a fork in the roads. Of course we used to say that what the man will do depends on the place which he aims to reach. All we see is that the man goes in one direction rather than another. We do not actually see any freedom—but neither do we see the actual working of any law of physical necessity. The pedestrian might have taken the other road and kept entirely within the scope of physical law. He uses all the laws that are involved in walking, after he has made either choice.

By the way, let us not forget that the sway of law in the physical realm is just about as hard to fit in with what we actually see as is the sway of freedom. The matter-of-fact world in which we live has rather an awkward way of getting along. The strictest scientist has, in the building of a suspension bridge, let us say, to make allowances for all manner of incalculable factors, so that the equation of the curve of the suspension cables is not the theoretically perfect curve for the demands of the bridge. When we look at human beings we are amazed at the amount of conduct which does not seem to fit into any law at all.

Look and see, says the Behaviorist. Well, see what? Can we see the physical changes which take place in a larynx which would give us any hint as to the content of the different words used? The seeing is not what the ordinary eye could see, but what the theorist is sure that our seeing would be if we could see what the theory calls for. The Behaviorist, and all the others of us, would better keep in mind that seeing physical processes begets what Tom Paine called in another connection "the calamitous necessity of going on." In seeing physical processes we have to push back of the apparent to get at the real, we are told. To tell why a man takes one highway rather than another we have to get back of muscles and bones to nerves, and then back of nerves to cells, and then to molecules, and finally to atoms. What are atoms? Just now they seem to be organizations of electric energy, with the centers of energy related to one another like suns and planets in miniature solar systems. The proton is the sun.

Around the proton revolve, or move in ellipses, electrons in various numbers. One number of electrons gives rise to what appears to us as gold, and another as lead. The organic elements, like those of the human body, are composed of these little solar systems in unimaginable complexity. Now in the Behaviorist's dictum that there is nothing in the universe except the play of physical forces, everything comes at last to atomic combinations. Down there in the atoms one combination of movements produces, in a large aggregation of atoms which we call a man, a belief which is Behaviorism. Then in another aggregation, which to all appearances seems like the first, the atoms produce another belief which is non-Behaviorism. The ironic aspect of all this appears when we reflect that the atoms are supposed to be centers of forces which whirl with mathematical exactness. We are told that Einstein's formula for the special statement of relativity obtains in the atom systems. In any case, some mathematical formulas hold. Now mathematics is supposed to be the most exact of all phases of human thinking. The irony is that these exactest of all movements are the physical supports of both Behaviorism and non-Behaviorism. According to the Behaviorist the universe gives an account of itself in these stimuli which are made upon human organisms. There are, however, all sorts and conditions of stimuli. The only way a Behaviorist can reach a behavioristic theory is to select and concentrate on behavioristic stimuli. Of course selection by free choice is out of the question. So that the only recourse left to us is to recognize that the stimuli at one instant give forth behavioristic notions, and at another non-behavioristic. So there we are! The only way we can judge between forces of the physical kind is to estimate them by scales. There are differences in man and velocity. On that basis the Behaviorist who has the more violent stimuli, which report themselves in the more extravagant claims for Behaviorism and the more energetic scorn for non-Behaviorists, has the better of it. There is no end of the nonsense we get into when we try thus to estimate ideas on the basis of weight and force. On this basis, moreover, Behaviorism is not proved, except by majority vote.

It is open to the Behaviorist to reply that every stimulus has its own quality. Many persons of this type of thinking insist that the qualities of our impressions are not affected by the manner of their production. The Behaviorist does not leave much place for ends-in-themselves, but he would be willing to admit that an impression of the beautiful is what it is on its own account. If something in the environment makes in the human organism a response which reports itself as a beautiful picture, the beauty of the picture stands in its own right. What difference does it make, we are asked, whether the picture is produced by the environment or is the creation of the self's free activity?

Without laying stress on free activity as creating the picture outright, we do insist that if impressions of fine quality are produced in us by the environment we can do nothing about them if we do not have at least enough freedom to make choice from among them. We cannot say that we will look a little longer at the beautiful and push the ugly to one side. For each picture carries with it, or is carried along by, its own degree of force. It not only has an inherent quality, but an inherent quantity. There is nothing we can do about it at all. Now force of beauty is not physically construable. The picture with the highest conceivable power of inherent beauty may have back of it the weakest stimulus. It gleams before us for an instant, and then is gone beyond recall—or at least beyond our recall. If some shift of energies in the environment reënforces the beautiful impression, it may return. In which case the problem of teaching art, or developing the appreciation of the beautiful, is that of developing the physical forces behind the feeling for the beautiful. Here again, however, we are helpless. Beyond a limited degree of training in general health and in development of the finer senses of sight and hearing and touch, who can tell what physical stimuli are accompanied by high artistic insight?

To return for a moment to the question of mass and force, we may even say that we cannot measure power without a standard which is the creation of the free spirit, and which demands freedom for its use. The entire problem of freedom is usually handled from the point of view of its moral significance, but the speculative significance is even more important. The ethical consequences of the denial of freedom are obvious and dramatic, of course. Yet here we might console ourselves with a feeling of vast tragedy. A distinguished philosopher has written finely of the *Free Man's Worship*, which, it appears, is to erect itself on a firm base of unyielding despair, with freedom counting for nothing. All of which makes a measure of appeal especially in comfortable armchair moods. We can easily grow poetic over the notion that we are all "poor puppets jerked by unseen wires," and as long as we do not become so poor as to be too hungry, we can look at ourselves with melancholy delight. Suppose, however, we are all fools—that life is indeed "a tale told by an idiot, full of sound and fury, signifying nothing." If beliefs are only effects produced by causes, and not the results of free thinking, we are all alike dunces. Or the wisdom of the wisest man is no better than the dullness of the veriest dunce. There might conceivably be something noble in the tragedy of utter absence of moral freedom, but what is noble about a universe in which there is no difference between sense and nonsense? Behaviorism may be the last word of wisdom, but on its own theory it is no better than the first word of nonsense.

To get back to the measurement of quantities. How has the mind of man attained to the power to measure? By the free use of intellectually-conceived scales. The achievements of mathematics are the lordliest of the human mind. Who can think of a table of logarithms, or the binomial theorem, or the calculus as the out-working of physical stimuli? On the behavioristic theory we should have to think that the balance in a mathematical equation is only an equilibrium between stimuli. There is no way of stating mathematical truth to fit it into the requirements of behavioristic theory. There are some improvements in mathematical formulas that required decades to bring about. The thinkers who wrought the required improvements may have thought that they were thinking, that they were freely holding the processes up to the standards of reason, that they were freely choosing among intellectual tools to find a true result, that they were suspending judgment when they could not find a satisfactory outcome. The Behaviorist would have us know that the mathematicians have been merely the recipients of physical stimuli. Now the gap between physical stimuli and mathematical concepts is so deep and vast as to suggest no necessary connection between them whatever. All we can get on the side of stimulus is particles of substance in motion—in motion, too, below the range of the power of the microscope to give us a glimpse of them. Then these motions, which are of such fineness that the microscope cannot seize them, give us, let us say, the idea of astronomical distances so vast that no telescope can grasp them. The infinitely little seizes the infinitely big, while the thought of the "big" is qualitatively unlike anything that physical movement of non-substance can suggest. Logical movement is movement only by permissible figure of speech, just as figure of speech is not figure in the spatial sense.

Now the Behaviorist asks if we wish to deny outright the dependence of what we call mind on matter. He is moved to mirth at the spectacle of an alleged freedom that is bound by such chains as are those of human bodies. A degree of such dependence has always been admitted by all who have thought at all seriously about the relations of body and mind. It is only caricature that can see in freedom a wild thrashing about of a something-or-other that has no connection with physical law. At inopportune moments this wild something enters and begins to play havoc. Well, if there were any such bogey it could only act according to law. A thinker once protested against freedom as likely to "lunge about." Lunging can be done only under law. If freedom is the bull-in-the-china-shop of philosophy, we need not think that law is set aside by bovine rushings and smashings. We cannot escape law by rushing about, and no sensible expounder of freedom ever thought we could. In truth the lunging about is not suggestive of freedom at all, but of determinism. If we were at the mercy of stimuli to the degree the Behaviorist imagines, with no will to set ourselves to control the responses to stimuli, we should do an immense amount of lunging about. Indeed, on strictly Behaviorist principles, the bull-in-the-china-shop is your true Behaviorist. He is immediately responsive to stimuli. On the other hand the free and willing subjection to law is the highest manifestation of the free spirit.

Nobody whose opinion is worth considering denies a measure of dependence of will on matter. It has been known since Cain killed Abel that the destruction of a human body will stop the working of the free spirit through that body, though that may mean nothing more than that an instrument is broken. The higher spiritual faculties have long been connected, in our theories, with the brain. The increased localization of functions in particular brain tracts is only an enlargement of what we have really known all along.

We live at given times and places, and cannot change the times at all, and the places only slightly. We are shut down in a thin blanket of atmosphere on the surface of the earth, and to limited areas of that surface. If our bodily organisms experience six or seven degrees of heat above a certain point, we cease to be. The days of our years are threescore and ten, but the overwhelming majority of men born since the beginning have not reached one score years. By arduous and scrupulous care men can live to fourscore. All of which is commonplace. Within the limits of our bank and shoal of time, however, we can well enough learn our limitations as to live comfortably within them and in a degree to master them. We may dwell on a bank and shoal of time, but by the exercise of our free minds we have learned that the bank and shoal are not all. We know the direction of the stream, and can make sound guesses as to the ocean toward which it flows.

We admit a good many things in our belief in freedom. We admit the fact of stimuli, and rejoice that we can by heeding stimuli turn over to the bodily mechanism many functions which make it a splendid tool and servant. The piano-player can so use his freedom as to make his fingers almost a part of the instrument which he plays, the fingers carrying on unconsciously to himself and mechanically the peculiarities of his free practice. Above all we can select out of the stimuli the ones to which we will respond. We choose the laws which we will obey. By heedless acceptance of whatever stirs us we can become mere mechanisms. By selecting from the environment the nobler stimuli we can build ourselves into increasing freedom, attaining to that selfhood which is an end-in-itself. More than that, we can change the environment itself, so that it sends upon us more quickly and directly the stimuli which we choose for our own service and the service of man. Finally we attain to a paradox which is high wisdom: by best serving the world of men and things we attain the largest and best freedom.

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